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The Concept of Function in Osteopathy and Conventional Medicine: A Comparative Study

Stephen John Tyreman MA DO

**A thesis submitted in partial fulfilment of the requirements of the
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The Concept of Function in Osteopathy and Conventional Medicine: A Comparative Study

Abstract

This study compares and contrasts the uses of 'function' in osteopathy and in a closely related area of conventional medicine, *viz.*, orthopaedic surgery. Function is a fundamental concept in both; but a survey of the literature, and an initial analysis of the language used by practitioners in a sample of case studies, suggests that while orthopaedic surgeons focus on local failures of physiological function (F_{phys}), osteopaths are concerned with such failures in the global context of the whole body (F_{glob}). This is closely related to individual patients' expectations in relation to their overall ability to function (F_{pt}). The musculo-skeletal system, with which osteopaths are expert, is shown to be particularly significant for understanding F_{phys} , F_{pt} and F_{glob} . These uses of function are further analysed by drawing on the philosophical literature. This is shown to focus, like orthopaedic surgeons, mainly on biological function (F_{biol} which includes F_{phys}). In consequence, it is argued, the philosophical literature has under-emphasised the significance of context in defining functional norms. Certain authors have recognised the importance of context for the functioning of people (i.e. as F_{pt}); in this thesis, by contrast, context is shown to be important in defining functional norms at all levels, including the physiological/biological. In respect of the relationship between osteopathy and conventional medicine, it is concluded that F_{glob} (as employed more by osteopaths) involves explaining the clinical significance of local dysfunction in the broad context of patients' activities, and F_{phys} (as employed more by orthopaedic surgeons) involves categorising local dysfunction in terms of referential standards. The concept of agency, although not examined in detail, emerges as the key to linking the rôle of context in the meaning of function statements to the intentions and self-perception of patients in clinical practice. Because of the special rôle of the musculo-skeletal system in enacting agency, osteopathy offers particular insights into the contextual nature of function statements.

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I don't think that I am aware of all the people who have contributed to the outcome of this thesis. Chance remarks made by patients; perceptive comments from colleagues that suddenly clarified ideas I'd been struggling with or that made me realise how wrong I was; insights from those far better informed than I, all feature in some way or another in this study. In particular I owe an enormous debt to my supervisors, Professor Bill Fulford and Dr Michael Loughlin who gave of their time and great intellectual abilities generously and patiently, coaxing me through and dragging me back from potentially fruitless excursions into (as I thought) interesting new ideas. I couldn't have asked for better guidance and support. I must acknowledge Professor Lennart Nordenfelt's generous help and perceptive insights when I was struggling to formulate my ideas, and to his colleagues in Linköping who helped me considerably. The European Society for Philosophy, Medicine and Health Care has been a source of new friends and colleagues, a proving ground for many of my ideas, and an inspiration for continuing with my work. I trust that it will continue to support this important academic area. I also acknowledge the rôle that the Centre for the Study of Philosophy and Health Care at Swansea played many years ago in kindling my interest in philosophy.

The British School of Osteopathy and its principal, Dr Martin Collins, have been supportive of me and generous in helping to fund this work. My colleagues at the BSO and in my practice in Lincoln have been very patient and may finally find out what happens "when I've finished my thesis."

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Chapter Summaries

Part 1 – Setting the Agenda

Chapter 1 – Introduction and Background

Chapter 1 establishes the aims and maps out the territory of the thesis. It identifies key issues regarding the historical development, practices and current challenges to osteopathy and conventional medicine and the way function informs them. A particular issue for both professions, though for different reasons, is the extent to which their identities are linked to science and the humanities. Function is introduced as a fundamental concept for both professions where it informs theory and guides practice. The Chapter concludes that practitioners in both professions use the concept of function in more than one way. I provisionally distinguish between these, possibly different, conceptualisations of function by using the notation F_{ost} (for osteopathy) and F_{med} (for conventional medicine) plus a number of subcategories to depict different uses of function within each profession. Analysis of these sets the agenda for the thesis.

Chapter 2 – Function in Clinical Theory

Chapter 2 explores the rôle function plays in medical and osteopathic theory. It establishes function's logical relationship with concepts of disease and illness which it informs in significant and necessary ways. The Chapter maps the relationships between elements in the basic function statement, 'The function of x is to do y ', where x is some part (or behaviour) of an organism and y is a beneficial goal, and goes on to ask what this means for the way function informs dysfunction, disease (F_{dis}) and illness (F_{ill}). It concludes that the context in which y occurs is an essential, though usually covert, element requiring further analysis.

Part 2 – Function Concepts in Practice

Chapter 3 – Linguistic Analysis: “a way of getting started”

In this Chapter I use two Case Studies to begin to identify the way practitioners use function concepts in practice. Linguistic analysis, in particular Austin’s views on ‘ordinary language’, is used as “a way of getting started” (Warnock, précising Austin) on the task. It concludes that all the practitioners use two significantly different concepts of function, one which assumes that body parts and behaviours have “proper” physiological functions (referred to as F_{phys} a subcategory of biological function, F_{biol}), and the other that takes account of a person’s global ability to function (expressed through action/agency) in their physical and social environment (referred to as F_{glob}).

Chapter 4 – Function Concepts in Clinical Work

Chapter 4 builds on the analysis of the Case Studies by focusing further on the suggestion, generated in Chapters 2 and 3, that practitioners use two concepts of function, focusing respectively on the behaviour of body parts and the behaviour of the person as a whole. A critical question is whether knowledge of and attention to F_{glob} is an essential part of practice or merely a veneer of humanity superimposed on the real work of medicine, which is dealing with issues arising from F_{phys} (and F_{biol}). I argue that enquiring into each of these two areas requires different strategies, an epistemological strategy to determine whether F_{phys} is operating normally and an ontological strategy to determine which behaviours constitute F_{glob} .

Part 3 – Further Analysis of Function Statements

Chapter 5 – The Concept of Function in Biology

Chapter 5 notes that most (and possibly all) the published work on the concept of function is concerned with biological function (F_{biol} and its subcategory F_{phys}). This assumes that medical concepts, and, particularly for my analysis, function concepts in practice, are based on and therefore explained by biological function. I question this assumption on the grounds that the work

of biologists is different from that of practitioners – each use function concepts to different ends, one to develop a scientific unifying body of knowledge and the other to understand particular medical problems. In addition I identify flaws in the claim that function ascriptions in biology are objective and value-free. I introduce Cummins's intrasystemic analysis because it makes explicit the difference between local biological properties/dispositions and the global functional ends served by them.

Chapter 6 – Re-examining the Concept of Function in Practice

In Chapter 6 I go on to apply, develop and adapt Cummins's account of systems and properties/dispositions, to the observation, made in Chapter 3, that practitioners use two concepts of function, the physiology of local parts (F_{phys}) and the global actions/agency of the person (F_{glob}). A key question, requiring further clarification, is what is meant by a system and what the relationship is between systems and the physiological dispositions that constitute them. This makes explicit the rôle of context in defining function and (particularly for practitioners) of dysfunction. The function of artefacts is examined and found to operate in a number of ways, as items with intended function (such as chairs and can-openers), and as items whose capacities can be deployed in a range of functional uses (such as planks, paper and wheels). It is argued that this parallels function as it is used in practice, but requires a further concept of function to explain the derivation of F_{glob} . F_{pt} denotes the expectations of patients and practitioners of what would normally be taken for granted with respect to actions/agency. (F_{glob} denotes the actual actions/agency of the individual.) The Chapter also explores the rôle that function plays in linking the concepts of illness and disease.

Part 4 – Implications for Practice

Chapter 7 – Conceptualising Function in Osteopathy & Conventional Medicine

In Chapter 7 I return to the practice issues, first identified in Chapter 1 and further elucidated by the Case Studies in Chapters 3 & 4, to ask how we can now understand the various ways function terms are used by osteopaths and conventional medical practitioners. I argue that illness, disease and dysfunction (foundational concepts in both professions) operate as a hierarchy of concepts in which illness refers to the incapacity (or loss of agency due to the incapacity) of persons engaging with their physical/social environment; dysfunction is the (dys)capacity of particular parts that constitute the global incapacity (thereby vitiating agency). Diseases are nominalistically defined biological phenomena in which dysfunction, commonly described in pathophysiological terms, is a significant defining component.

Osteopathy is distinguished by its unwillingness to accept an ideal norm for F_{pt} , (an implicit assumption of conventional medicine). Instead it takes F_{pt} to be an evaluative concept informed by cultural, sociological, psychological and scientific insights into human-kind. I argue that the way F_{pt} is understood determines the way action/agency of persons is understood – the ability to engage with the world in taken-for-granted ways, the majority of which entail physical activities – and therefore the way illness and the work of practitioners is understood. Enabling patients to be effective agents (rather than trying to achieve a mythical ideal) is therefore the true work of practitioners. Because of osteopathy's primary concern with the musculo-skeletal system, it more naturally focuses on peoples' physical engagements with their worlds.

Chapter 8 – Conclusions

I conclude that there are important differences in the way that function is conceptualised across and within disciplines and professions. The weightings given to F_{phys} and F_{glob} and the ways they (jointly) drive the diagnostic process, explain differences between primary and secondary practitioners and between osteopaths and conventional medical practitioners. Osteopathy has a special contribution to make from its explicit recognition of context in defining function all the way

down from the global functioning of the person to the function of constitutive local parts. By identifying agency as the key to linking the rôle of context in the meaning of function statements to patients' intentions and self-perception, three elements that are important for (all) practitioners are made explicit: the context in which people and body parts act plus the structures formed by systemic relationships; the mental intentions of the agent and the way intentions provide a focus for action; finally, the extent to which the ability/capacity to act in ways that are taken-for-granted defines a person's perception of themselves as an agent, and informs judgements of whether or not they are ill.

Part 1

Setting the Agenda

Chapter 1. Introduction and Background

Chapter 1 establishes the aims and maps out the territory of the thesis. It identifies key issues regarding the historical development, practices and current challenges to osteopathy and conventional medicine and the way function informs them. A particular issue for both professions, though for different reasons, is the extent to which their identities are linked to science and the humanities. Function is introduced as a fundamental concept for both professions where it informs theory and guides practice. The Chapter concludes that practitioners in both professions use the concept of function in more than one way. I provisionally distinguish between these, possibly different, conceptualisations of function by using the notation F_{ost} (for osteopathy) and F_{med} (for conventional medicine) plus a number of subcategories to depict different uses of function within each profession. Analysis of these sets the agenda for the thesis.

1.1. Aims of the study

The primary aim of the study is to analyse the ways in which osteopaths and conventional medical secondary care practitioners (as illustrated by orthopaedic surgeons) use the term function in clinical practice. A secondary aim is to see whether and to what extent the concept of function both defines practice for and provides a point of contact between osteopaths and medical practitioners in primary and secondary care.

Because the literature on function refers almost exclusively to biological function a key challenge is to analyse the concept of function as it is used by practitioners in practice without assuming that biological function explains all function. A further challenge is to begin to clarify what osteopaths mean by and how they actually use function concepts. It is anticipated that this work may additionally contribute to the clarification of function terms in conventional medicine.

1.2. Plan of the thesis

This opening Chapter establishes the background to and context of the thesis. It offers a brief description of osteopathy and conventional medicine and identifies that both face a similar challenge, which is to define their core activities in relation to science and the

humanities. I argue that because 'function' underpins other foundational areas such as physiology, dysfunction, disease and illness, and because osteopaths claim a special place for 'function' and 'dysfunction' in their diagnosis and treatment, it is a fruitful starting place for analysing not just what function means as a theoretical construct, but what it means for practice and how, covertly, the concepts that inform function use lie at the heart of osteopathy and conventional medicine. Chapter 2 examines the logical work that function ascriptions perform in relation to dysfunction, illness and disease, and why it is important to be clear about the constitutive elements in function statements; finally, context is identified as an important implicit element in function ascriptions. Part 1 thus sets the agenda for further philosophical analysis in Parts 2 and 3.

Analysis of function as a concept in practice is the focus for Part 2. Chapter 3 calls on ordinary-language philosophy to examine case studies involving orthopaedics and osteopathy in order to understand the ways practitioners use function concepts in their work. Two distinct concepts of function emerge from the analysis, one which focuses on the (physiological) behaviour of body parts, and the other on the global actions/agency of the patient as a whole. Chapter 4 further develops the conclusions from Chapter 3 and explores the significance for practitioners of working with different concepts of function to explain disease and illness.

Part 3 enters into deeper philosophical analysis of these issues. Chapter 5 explores the concept of function by relating the outcome of Chapters 3 & 4 to the literature on biological function. Most of the literature on function focuses on biological function rather than its use in practice. It is argued that the interest in function for practitioners and biologists is different as is their use of function ascriptions to explain their work. A prime concern for biologists is to define function within biology, while for practitioners it is to explain a patient's illness. Chapter 6 applies the outcome of this analysis to practice by comparing and contrasting the concept of function in practice with that of artefact function. It builds on Robert Cummins's work by dividing (physiological) dispositions from (functional) capacities, including the "greater capacity" of the person themselves.

This is shown to have important implications for conceptualising dysfunction, disease and illness and the strategies for analysing them.

Finally Part 4 signals a return to the professional agenda identified at the conclusion of Part 1. It asks how the concepts of function, as used in practice, apply to our understanding of dysfunction, illness and disease and what it means for the way osteopathy and conventional medicine define themselves. A key issue is which concept of function drives the diagnostic process. This leads to a discussion on the implications for communication and collaboration between the care professions and suggestions for further analysis.

1.3. Terminology and limits of the investigation

In-depth investigation of any aspect of health care inevitably comes across the problem of demarcating the limits of analysis. Legitimate interest in health and its breakdown is both extensive – it covers a wide range of disciplines from micro-biology to town planning – and rich in terminology. A cursory glance at ‘illness’ in Roget’s Thesaurus reveals a multitude of synonyms and related terms to describe this particular area of human experience. Much of the terminology used by health workers to describe the experiences of health and illness has developed out of common usage, but many terms also have more specific and technical definitions when used by practitioners. To add to the confusion, it can’t be assumed that, because a word has a specific meaning in one context, different practitioners using the same term in a different context understand the same thing by it. This, as I aim to demonstrate, is true of ‘function’ where biologists, conventional medical practitioners and osteopaths use the term with subtly, but significantly, different meanings. Even within a single discipline, such as conventional medicine, there can be differences of emphasis if not of meaning.

A further consequence of the richness and complexity of health and illness terminology is that, in investigating one aspect, a number of terms will necessarily be referred to without opportunity fully to explore their meaning. It is important therefore to make clear what is

and is not being investigated in this thesis together with an explanation of how other important concepts will be dealt with.

I will use the term 'patient' for anyone seeking professional care and 'practitioner' for anyone providing such care, in a purely descriptive sense without necessarily assuming rôles or inferring values. Where I need to refer to specific professions, I will use the term 'conventional medicine' to describe the thinking and practice that broadly forms the basis of State-endorsed medicine in Western societies. Complementary and alternative medicine (CAM) has become a recognised term for the disparate collection of health care practices that have developed outside main-stream medicine, but which have little in common other than that they are not (or until recently have not) been considered part of State provided (and endorsed) care.¹ It is common for health care practitioners to be categorised as primary, secondary or tertiary according to which stage of investigation and treatment they are involved in. As I will discuss later, these terms can be interpreted in different ways and some professions incorporate elements of more than one.

My use of the term illness requires some preparatory explanation. I will be using illness in the early part of the study in a phenomenological sense as a means of gaining access to patients' health experiences. In the Case Studies, illness will refer to the reason a patient consults a practitioner² – their motivation for seeking a professional opinion. My interest at this point is in how different practitioners interpret the information with which a

¹ With State sanctioned self-regulation of CAM disciplines such as osteopathy and chiropractic, the distinction between practices inside and outside main-stream health care is becoming blurred.

² I am aware that most people don't use the term 'illness' to describe their back pain. In fact most specifically say that they do not feel ill, but are incapacitated, or just have pain. The terms 'problem' and 'complaint' are not suitable replacements; they are not medical terms nor do they refer specifically to health problems. Clouser, et al suggest the use of the term 'malady' to cover all those experiences for which patients seek health care. (Clouser, Culver & Gert, 1997) The problem here is that malady is not a term patients commonly use. As doctors, on the whole, use the term illness in a general sense to describe anything the patients comes to see them about, I will use it in this general sense. A patient may therefore *have* an illness (which includes incapacity) without necessarily *feeling* ill where ill equates to sick (in the American usage of the term).

patient presents, and in the semantic and ontological correlation between practitioners' professional interests. In other words, what kinds of experiences count as medically, osteopathically (or whatever) significant, and how the medical or osteopathic explanation relates to the original experience as perceived by the patient.

These differences are further analysed in the context of the literature on illness and disease, in particular, the ways in which illness and disease concepts entail concepts of function. This becomes a more technical conceptualisation of illness than the phenomenological interpretation partly because it refers to the ways in which practitioners understand the term, and partly from the philosophical analysis which attempts to define illness more clearly by identifying the logical connections between it and disease, dysfunction and function. Finally, following further analysis of function, the concept of illness is re-examined in a phenomenological sense (as that with which a patient presents) to show that the understanding of function in osteopathy and conventional medicine has implications for our understanding of illness.³

For reasons that I will make clear, the main focus of my thesis is the concept of function in osteopathy and conventional medicine. My argument is that the concept of function is implicit in the ways practitioners conceptualise illness and disease and that a clearer picture of what is meant by function can be gained by examining the ways in which these terms are used. My bias is therefore towards conceptual analysis rather than theoretical definition.

³ Interestingly, this parallels the order in which, according to Svenaeus, conventional medicine conceptualised the relationship between the patient, the doctor and the illness. (Svenaeus, 1999) Before 1800 the clinical encounter focused on what the patient reported; then the emphasis moved to finding and measuring pathological markers. Today, not only is the word of the patient given less weight in decision-making, it is actually mistrusted. One of the jobs of the physician is to check that what the patient says is true. Although they may not deliberately be concealing the truth or making symptoms up (though in many cases this is assumed) patients are regarded as poor reporters and judges of what is wrong with them. Objective evidence takes precedence over subjective accounts. But perhaps today under the influence of phenomenological analysis and with a new emphasis on
cont ...

Inevitably, concepts of illness and disease will feature prominently in the main part of the discussion, with only a nod towards the concept of health. This is not because health is not an important concept; health, illness and disease are all fundamental, foundational concepts in health care. Without them there can be no meaningful communication between practitioners whether or not the concepts themselves are made explicit. My argument, as I aim to demonstrate, is that there is a logical connection between the concepts of function, dysfunction, disease and illness. It is possible to approach the concept of health from positive or negative definitions. Nordenfelt (1995) for example, defines health in a positive way in terms of “vital goals”, Seedhouse prefers the term, “foundation for achievement”. (Seedhouse, 1986) This implies that defining health will clarify deviations such as illness and disease. Other theorists, for example, Scadding (1988) and Boorse (1976), prefer to define health as the absence of disease on the basis that the rôle of health care is primarily to identify and remove disease and dysfunction. There is not sufficient space for me to get involved with this debate though by focussing primarily on illness and disease and defining function from the ways practitioners use function concepts, by default I appear to be lining myself up with those who prefer to define health negatively in terms of illness and disease. I need to do more analysis before being sure that that is my position.

The concept of function is under investigation for a number of related reasons: first, because it is a central element in osteopathic theory. Although osteopaths hold it in special regard, in particular through the oft-quoted aphorism ‘structure governs function’, this special regard is inadequately explained. Second, function is a key feature of conventional medical theory. It is strongly linked with physiology, a key science of medicine, and in this sense is also adopted by osteopathic theory. Third, the use of

patient-centred care, we are beginning to see a return to taking a serious interest in the patient’s perception and interpretation of their problem.

function concepts in primary health care (as distinct from biology) is under-explored in the literature, presumably on the grounds that what applies to biology applies equally to health care.

Prima facie function is logically related to dysfunction, which, in turn, forms the basis for disease ascriptions in conventional medicine. Similarities and differences between the ways that osteopathy and conventional medicine explain dysfunction, illness and disease are therefore likely to be predicated on function. I make clear at the outset the hypothesis that function is used by practitioners in a number of ways. I use a simple notation system to distinguish the possible different ways function might be conceptualised.⁴ I use the term F_{ost} is used to denote osteopathic conceptions of function and F_{med} the medical/orthopaedic concept. In addition, F_{phys} denotes physiological concepts of function (as a subcategory of F_{biol} , biological function). F_{glob} denotes the global capacity of an individual person/whole organism to function. (Later I introduce F_{pt} to denote patient/practitioner assumptions about how people in general expect to be able to function as agents in a social capacity – activities that are taken-for-granted.) I identify other areas where function is an important concept: F_{nat} and F_{norm} refer to naturalistic and normative concepts of function; F_{ill} and F_{dis} function concepts linked to concepts of illness and disease. Over the course of the thesis these are all shown to converge as subsets of F_{biol} and F_{pt} .

1.4. Osteopathy

Osteopathy is a system of diagnosis and treatment that lays most emphasis on the structural integrity of the body. It believes that the so-called structural components of the body – musculo-skeletal, connective tissue and so on – are vital parts of a total body economy (which includes viscera in a supportive capacity), the focus of which is the

⁴ This is referenced in Chapter 10, Glossary of Function Terms & Notations (p.315).

activities/behaviour of people. Implicit in this is the belief that good health requires these structures to function together in an integrated and co-ordinated way and that illness represents a breakdown or failure of some aspect(s) of this integrated activity. The concepts of structure and function are considered fundamental to osteopathic thinking and practice.

1.4.1. Historical development of osteopathy

As a profession osteopathy is in the strange position of owning an ancient heritage of manual treatment and at the same time being only recently recognised (by the State in the UK) as making a legitimate contribution to care provision. The reasons for this and challenges that arise from it set the scene for discussing the different interests of osteopathy and conventional medicine in relation to function.

Although developing in its present form at the end of the 19th and during the 20th Centuries, osteopathy's roots go back into Antiquity with bonesetting and other forms of manipulation. Osteopathy's American founder, Andrew Taylor Still emphasised 'principles' of diagnosis and treatment (rather than specific techniques for particular diseases) which he believed to be God-given and which, when properly understood, could guide the osteopath into doing the right thing for the patient. Still's classical triad of principles⁵ *structure governs function, the rule of the artery is supreme, and the body contains its own medicine chest*, plus an over-arching assumption that there is an essential unity to the body, are generally acknowledged to lie somewhere near the heart of osteopathic practice. (Corson, 2000) But the extent to which they define osteopathic care and guide clinical decision-making, is unclear.

⁵ Still's Principles are frequently quoted by osteopaths, but are not found in any of his writings. They are regarded as implicit in his general teaching.

1.4.1.1 *Osteopathy – an emerging profession*

Osteopathy emerged during a period of intense development and change in medicine. In Europe, pioneers such as Pasteur, Koch, Jenner, Virchow, Simpson, and others were building modern medicine on the foundations of pathology, cellular biology, antiseptic control and scientific methodology. By comparison, America at that time was relatively backward with respect to scientific medicine, preferring instead more natural systems of healing. It was the era of the Christian Science movement and John Harvey Kellogg's Health Reform Institute which emphasised the importance of restricting diet, alcohol and sexual activity. Osteopathy, chiropractic, naturopathy, homoeopathy and many other alternative therapies emerged there at about this time. Roy Porter, the medical historian, characterises differences between Europe and America in the late 19th Century in the following way:

If Paris pathology encouraged Old World medicine to stress the empire of disease and death, American alternative sects were more upbeat, taking their cue from phrenologists and other self-help groups confident that science and attention to nature's laws contained the secrets of health. Nature was benign and, if humans only heeded her, their bodies would be naturally healthy. Such was the hopeful message of the osteopathy movement, originating in 1874 with Dr Andrew Taylor Still (1828-1917), who established his college at Kirksville, Missouri. Still asserted the body's inherent capacity to resist disease and repair itself. Osteopathy also stressed the intrinsic unity of all parts of the body, attributing disease to 'structural derangements' or 'somatic components of the disease processes', also called osteopathic lesions. While he concentrated on the spine, Still's followers extended manipulation to include electric and water treatments, massage and eventually surgery. (Porter, 1997 p.394)

Still, the son of an itinerant Methodist Minister cum doctor,⁶ was greatly affected by the death of three of his children during an outbreak of meningitis, which the medicine of that time was ineffective to control. Still could not accept that God had made mankind to suffer in a world of guessing and, in trying to find meaning for his life in the midst of his tragedy, he set out to discover a cause of illness that would eliminate guesswork from diagnosis and treatment. He was inspired by the belief that if mankind is the pinnacle of God's creation and made in His image, then potentially we must be perfect and should not become ill; if we do then it must be because of a fault somewhere in the body. He believed in natural immunity and considered the body to "contain its own medicine chest". According to Still, the rôle of the physician is to free the body so that natural substances can be allowed to do their work. This broadly reflected the prevailing view among nature cure practitioners of his time and came many years before any formal discovery of immunity or more recent investigations into stress responses.

Still developed his ideas from many hours spent studying anatomy – much of it from the exhumed graves of Native Americans – and gradually adapted a form of manipulation to correct the "slips, strains and subluxations" he found during the examination of his patients. In common with a number of other individuals who initiated 'fringe' practices at that time he appears to have been in antipathy to the 'heroic' medicine of Benjamin Rush. Still's principles have an interesting parallel to those of other aspects of fringe medicine and, like D. D. Palmer, the originator of chiropractic (in 1895), he was a magnetic healer and bone-setter for a period. Still claims to have 'discovered' osteopathy in 1874. If contemporary accounts are to be believed, he achieved some remarkable cures and there is no doubt that he had an enormous following. (Hildreth, 1942) The first school was opened in Kirksville, Missouri in 1892. By the time of Still's death there were

⁶ Abram Still, Andrew's father, eventually left the Methodist Church over the issue of slavery. The Still family were strongly abolitionist which was unpopular in the Southern States.

about 5,000 osteopaths. In America, for constitutional reasons, osteopathy became state registered soon after its inception and osteopathic physicians took on the rôle of primary care practitioners. Today they have full prescribing rights, practise surgery and can sign death certificates. This contrasts strongly with the situation in Europe where osteopathy is officially outlawed in many EU countries.

1.4.1.1.1 Osteopathy in the UK

Osteopathy in the UK has been strongly influenced by Dr John Martin Littlejohn, a Scot with medical and theological credentials who emigrated to America for his health, was treated by Still and enrolled on his course. He was soon appointed Dean at Kirksville from where he moved to take up the post of Dean at the Chicago School of Osteopathy. Following a dispute about the future direction of osteopathy in the USA, he returned to the UK in 1913 and opened the British School of Osteopathy (BSO) in 1917. He added physiology to Still's focus on anatomy and described osteopathy as "the science of adjustment". He viewed illness as a sign that a person is out of adjustment with their internal or external environment. (Littlejohn, 1874/1974) He described the rôle of the osteopath as being to identify where a fault lies and make appropriate 'adjustments' to allow the body to function correctly. This includes consideration of environmental, psychological and social factors as well as body structures. Littlejohn developed a complex model of ideal mechanical relationships based on the spine, which formed the basis of his mechanical postural assessment and treatment.

From 1925 attempts were made to get osteopathy statutorily registered in the UK and culminated in a Select Committee of the House of Lords in 1935 whose brief was to investigate osteopathy's credentials. Registration failed due to internal disagreements, the opposition of the medical establishment, and the political naïveté of Littlejohn and his

stubbornness in refusing to answer accusations made against him.⁷ The Select Committee recommended the establishment of a voluntary register which was established in 1936.⁸ The 1920s and '30s were marked by internal wrangling, in particular over the relationship between UK and American osteopaths. For a time, the British Osteopathic Association was a branch of the American Osteopathic Association to which it had to pay dues. Underlying the disagreements was the issue of whether osteopathy was a replacement for conventional medicine or an adjunct to it.⁹ This issue is still unresolved and continues to be a focus for debate today.

Beginning in the 1950s and continuing into the 1960s and early '70s, osteopathy began to describe its practice in more conventional medical terms, though avoiding the medical focus on disease. (Dove, 1960) The 'osteopathic lesion', a hallmark of osteopathic diagnosis was deconstructed into its pathophysiological elements, and biomechanical explanations began to take the place of descriptions of altered position and lesioned segments. (Hawkins, 1985) In recent years, this perceived medicalisation of osteopathy has been heavily criticised from many in the profession and attempts made to reconstruct

⁷ Littlejohn's claim to have a medical qualification and a doctorate in divinity awarded by Glasgow University, was questioned during the inquiry. Littlejohn regarded awards as of no consequence and refused to explain that his qualifications were gained at a college that was subsequently taken over by the University of Glasgow and that hence, he was not formally registered with Glasgow.

⁸ The resulting General Council and Register of Osteopaths (GCRO) remained in existence until the General Osteopathic Council (GOsC) was established in 1998 following the Osteopaths Act (1993).

⁹ The early UK osteopaths were all American trained and expected UK osteopaths to follow the same model of education and practice rights that they enjoyed in the USA. This included surgery and, eventually, full prescribing rights. Littlejohn foresaw that this would inevitably lead to conventional medicine absorbing osteopathy and he started the BSO for lay people to train as osteopaths in the drugless tradition Still originally intended. This was strongly opposed by the British Osteopathic Association with its American trained membership who opened the London College of Osteopathic Medicine (LCOM) to offer osteopathic training to British medical doctors. R. W. Puttick, an American trained osteopath, retains the pro-BOA and anti BSO bias in his account of the history of osteopathy in the UK even though his book was not published until 1956. (Puttick, 1956) The LCOM still exists today and offers a short course for doctors leading to full osteopathic registration. In 1998, with the coming together of the various factions in the profession, the title, British Osteopathic Association was resurrected as the professional body of all osteopaths.

a model of osteopathic care that pays more than lip service to its naturopathic heritage. (McKone, 2001)

Osteopathy has developed on the boundary of Old World scientific and New World naturopathic medicine and is thus a micro-history of health care as a whole. Its theory crosses modern scientific medicine with Ancient traditions of healing. In this respect it continues to reflect what Porter identifies as “the ambiguities in nineteenth-century medicine.” He goes on:

{Nineteenth-century medicine’s} new scientific and professional movements generated counter-trends – a populist, anti-elitist backlash. While people wanted their diseases to be cured, they were also seeking far more from medicine: explanations of their troubles, a sense of wholeness, a key to the meaning of life. Craving reassurance from physicians, democratic generations also, paradoxically, wanted to take health into their own hands. Not least, so long as the message of orthodox medicine was pessimistic, alternative medicine instilled hope. (Porter, 1997. p.396)

This Janus motif generates challenges for osteopathy both in the UK and the USA. In particular osteopathy is challenged to opt for one or other tradition, scientific medicine or healing, but to date the profession has resisted, arguing that its body of knowledge is a unique blend of the scientific and humanitarian; reductionist and holistic. However, it has not responded to the more difficult challenge, which is to demonstrate how these form a coherent theory. This thesis is an attempt to address that question.

The historical development and current status of osteopathy is described in the context of an emerging profession. The main point that is emphasised is osteopathy’s lack of a clear sense of identity. Although claiming to be complementary (rather than alternative) to conventional medicine, through its utilisation of medical scientific knowledge and investigative methodology, it also claims to offer something different and distinct. This is usually taken to be based on key osteopathic principles, which are frequently quoted but rarely defined.

1.4.2. Osteopathic principles

A fundamental assumption behind Still's ideas, is that the Body is a (functional) Unit. Anything altering or modifying one part of the body, affects the whole body and what affects the whole body has implications for every part. This raises the question of how practice is affected by that idea. Conventional medicine for example would accept that there is integrated activity within the body and that one part can affect another; however, it operates, and the whole edifice of specialisation is based on the assumption that it is possible to treat particular areas *as if* they are independent.¹⁰ Perhaps osteopaths are over-zealous in their claim that change in any part has repercussions on the whole and from that, every other part. It may be that in practice, minor changes have little or no significant effect on non-local areas.

Obviously there are empirical questions to be answered here about whether there are changes in remote areas, but there is also an important philosophical question that has to do with the way the body is understood. Fundamental to this is the concept of function, for it is through function statements that osteopaths describe the relationships between smaller and greater parts and with the whole body. It is probable that differences between osteopathy and conventional medicine will be posited ultimately on differences in the way that function is conceptualised and used to drive the diagnostic thinking of each profession.

1.4.2.1 Still's Principles

Having begun to map a little of the osteopathic landscape let us look in more detail at the other three of Still's Principles, 'structure governs function', 'the rule of the artery is supreme', and 'the body contains its own medicine chest'.

¹⁰ Arguably, some of the professional conflicts that exist between GPs, who by their nature are generalists and naturally tend to have a more holistic outlook, and hospital specialists who focus on specific areas, are the result of different attitudes towards this assumption.

1. Structure governs function. Still's understanding of the body's ability to function effectively and the structural integrity of body parts, is both complex and subtle. To modern observers, the idea of a causal link between a structure and its function is uncontroversial, even trivial. As I will point out later, Still may not have understood function as physiology in the way that we do today. Of particular interest in the principle is the use of the verb "governs" to describe the link between structure and function. 'Govern' can mean "rule or control", "influence or determine" or, "be a standard or principle for." (Allen, 1990) In addition, govern can mean "defining the boundaries of" in the sense that in a democratic society, for example, a government lays down laws that effectively define what is not permitted and by implication (and, in the UK, common law) allow people freedom to act within those boundaries. In this sense structure could be interpreted as the parameters that determine functional range. For example, structural degeneration in a hip joint has implications for the function of that joint because it limits the range of movement.

We do not have any way of knowing for certain what Still meant – if he was sure himself. He doesn't provide us with any clear definition of either structure or function. We can try to interpret what he might have meant in the light of his and other contemporary writings, but it will be an interpretation rather than a defining principle. I have more to say on this issue later.

2. The rule of the artery is supreme is an even more problematic statement. The use of "rule" and "supreme" to describe circulation seems somewhat bizarre. If, as is frequently assumed, Still intended to convey the idea that an efficient blood supply is important for the healthy functioning of body tissues, this too is uncontroversial, though perhaps a modern interpretation of Still. If he was claiming something more than this, for example, that all disease is the result of impaired or inadequate blood supply, which in the light of his writing could be a valid reading, (Webster-Jones, 1954) it is more contentious and a conclusion with which many practitioners might feel uncomfortable. It is likely that he

was reflecting some of the thinking of his day which linked blood vessels and the heart with the flow of vital energy – what Swedenborg called “God flow”.

3. That the body contains its own medicine chest, is an astute perception coming as it did before medical understanding of the immune system. But it is hardly a guide to treatment. Knowing that the body is capable of self-correction and homeostatic balance doesn't provide a practitioner with anything that tells him what to do in a certain case, only that the body, in a particular but unspecified state, has the capability of correcting itself. Based on his belief that the human body was a potentially perfect act of creation (and possibly influenced by the doctrine of Christian Perfection found in early Methodism) Still assumed that if body parts are properly arranged, i.e., if the structure is sound and the body-machine perfected, then access to the “medicine chest” is automatically gained and the body's innate healing systems will counter the disease process. This hints of serendipity rather than planned treatment with anticipated specific outcomes. If true, if it is possible to release endogenous chemicals to counteract specific diseases, then much more research is necessary to demonstrate the relationship between treatment and those physiological responses.

Although these principles are interesting and, arguably, provide a basis for understanding and developing what Still understood osteopathy to be, they do not provide a firm enough set of guidelines on their own, to allow a practitioner to make decisions about what information is relevant or what treatment will be effective. If principles are to guide practice, they must be applicable in identified circumstances and indicate courses of action. Nevertheless, it is clear that they are all subsumed by the general principle that the body is essentially a unit in which function (whatever it may mean) is governed by structure (whatever that may mean) and where all tissues are dependent on a single effective blood circulatory system and where checks and balances to inappropriate activity in the body are carried out by the body as a whole.

If the philosophical and theoretical accounts are somewhat patchy, how is osteopathy interpreted clinically? What are the clinical beliefs and rules of thumb?

1.4.2.2 *The Osteopathic Lesion and Somatic Dysfunction*

A key concept in osteopathy is the ‘osteopathic lesion’ or ‘somatic dysfunction’. This gives special significance to the common clinical finding of tenderness and irritability associated with one or more spinal segments.¹¹ The early osteopaths claimed that manipulation of these lesions not only corrected the irritability and discomfort associated with the spine, but had benefits for more remote parts of the body, and could counter disease. Still explained these in terms of mechanical dysfunctions preventing the flow of blood or blocking of nerves, relief of which allowed the body to restore normal health again. Littlejohn had a similar concept but saw the rôle of nerves as both adaptive and nutritive. (Littlejohn, 1874/1974) In particular he believed disease to be the result of “some pathological change in the vital, physical, or physiological adjustment of the body ...” (*ibid.* p.2) He associated specific segments of the spine with particular conditions determined according to their autonomic nervous system innervation – the lower thoracic spine for kidney problems and the lumbar spine for bowel disorders, for example. He also regarded the structure of the body as being constructed in accordance with triangles of forces such that if one part is out of adjustment, it has consequences for all other areas.¹²

The unforeseen result of Littlejohn and others’ theoretical constructs is a system of diagnosis and treatment that focuses on ‘lesion hunting’. Osteopaths look for spinal segments that are out of alignment (or adjustment) and correct them with appropriate manual techniques. So a lumbar segment diagnosed as held in rotation to the right, say, is

¹¹ For a full account of the history of the osteopathic lesion and somatic dysfunction see Colin Dove’s Littlejohn Memorial Lecture. (Dove, 1967)

¹² These ideas continue in a branch of osteopathy referred to as Classical Osteopathy. These practitioners believe that osteopathy reached its pinnacle with Littlejohn and they continue to base their practice on his ideas and principles.

manipulated by rotating it to the left.¹³ Treatment logically follows diagnosis though diagnosis is only indirectly related to pathology.

There are two important points to be made here. The first is that Littlejohn's diagnostic system, for all its naïveté, conceptualises disease in the context of environmental change and physiological adaptation. Named diseases do not occur out of nowhere but are perceived to be natural developments from attempts by areas of the body to adapt (unsuccessfully) to harmful environmental insults. There is therefore a rational explanation for the disease based on physiological adaptation. Paradoxically, the second point is that it is possible to treat a patient without any understanding of pathological change or its possible consequences. Knowledge of anatomy is essential but it is enough to find spinal lesions. This led to criticism from the medical establishment that osteopaths can miss and inappropriately attempt to manipulate TB of the spine.¹⁴ Thus it became necessary to deconstruct the lesion and reconstruct it in another form. This new form was termed somatic dysfunction though in essence, it still describes the same phenomenon.

1.4.2.2.1 Somatic dysfunction

Irvin Korr is the person most closely associated with the 'osteopathic lesion' (later termed somatic dysfunction). Korr, an American physiologist joined Denslow's team at Kirksville in their work on the osteopathic lesion in the 1940s. (Denslow, Korr & Krems, 1951; Korr, 1947) The concept Korr eventually came up with, was that mechanical changes in the spine exaggerate neurological activity at specific segments in the spinal cord. This established what he termed a 'neurological lens', a segment of the cord that

¹³ Chiropractic technique was very similar in this respect, but X-ray plates were used to aid the diagnosis rather than simply relying on observation and palpation. Vertical and horizontal lines would be drawn on the plate and deviations from these by spinal segments would be noted and forceful manipulation applied specifically to those segments in order to reposition them.

¹⁴ Interestingly, as TB became rare, this warning changed in the 1960s and 70s to focus on cancer of the spine.

magnifies the activity of any neurone that synapses within it. (Korr, 1947) This accounts for the tenderness, irritability and tissue texture changes commonly found at these segments and offers a theoretical construct to explain how distant changes can be effected by mechanical lesions. Viscera, including blood vessels and hence the distribution of blood, are innervated through the autonomic nervous system the neural bodies of which are located in the lateral horn of the spinal cord and synapse with descending fibres and lateral segmentally organised nerves. Korr described these links in terms of somato-visceral and viscerosomatic reflexes. (Korr, 1978) The effect of this work was to produce a concept that describes the dysfunctional effects of changes in the somatic (i.e. non-visceral) structures of the body. This places pathophysiological and pathological changes in the context of influences from many areas of the body and from environmental effects that necessitate adaptation by the body's homeostatic mechanisms.

The concept of somatic dysfunction remains controversial. The research evidence for the effects of spinal cord facilitation on pathophysiological changes is patchy (Baskeyfield, 2000; Beal, 1985); much of it relies on inference from other physiological research, such as research into the autonomic nervous system; (Korr, 1977; McC. Brooks, Uchizono & Uono, 1979) in addition there is debate over how significant the lesioned segment is to osteopathic diagnosis and treatment. (Gibbons & Tehan, 2000; Lederman, 2000) It raises a question mark over the extent to which osteopathy is defined by this particular concept. Is it in fact a small (and dispensable) appendage to some larger more significant concept? Hence the focus for my thesis; what do osteopaths mean by function and dysfunction?

Importantly, somatic dysfunction is not conceptualised in the same way that pathology is. Its amenability to being palpated is a key characteristic of somatic dysfunction. I pointed out that the common clinical findings of tenderness and tissue irritability stimulated Denslow and Korr to investigate the clinical implications and pathophysiological explanation of the phenomenon. Qualitative changes in the feel of tissues is a major part of the osteopath's diagnostic armoury whether or not pathological changes are present. A system of technique with its own diagnostic criteria, referred to as 'Functional Technique'

(Johnston & Friedman, 1994), uses palpatory information primarily, to guide diagnosis and treatment. From the sense of 'ease' and 'bind' and other distinct changes osteopaths make judgements about good and bad function in local tissues. (Nathan, 1999)

During the 1970s osteopathy attempted to explain its theory using conventional medical terms. (Hawkins, 1985; Smith, 1985) One effect of this was to conceptually separate diagnosis from osteopathic technique. For example, if a medial collateral ligament of the knee is diagnosed as inflamed, osteopathic technique has no 'anti-inflammatory procedures' to counteract it; the same is true for diagnosis of, say, a herniated or prolapsed intervertebral disc. This is not to suggest that osteopathic techniques cannot effectively change these states, only that there is no obvious common concept to link diagnosis with treatment. The traditional diagnostic approach enabled an osteopath diagnosing a vertebral segment fixed in flexion relative to its contiguous segments to employ a technique to encourage extension; or to increase the range of movement in a restricted joint with an appropriate technique. But once the lesioned state is analysed in terms of tissues and pathologies rather than mechanically, it leaves standard osteopathic technique isolated. An inflamed ligament cannot be explained in mechanical terms of leverage, force, direction, velocity and so on, though of course the pathological state might have mechanical consequences. This issue has never fully been resolved.

It is unclear as to what either 'somatic' or 'dysfunction' refer to. On Korr's own account, dysfunction is often no different, physiologically, from function, where it can be normal physiology responding inappropriately to particular circumstances. For example, it is normal (and not a sign of dysfunction) for blood pressure to be raised in response to strenuous activity, but that same response is judged to be dysfunction (or even disease) when it occurs without strenuous activity. I will address the 'somatic' in a moment.

1.4.2.2.2 The Primary Machinery of Life

It is helpful to distinguish the concept of somatic dysfunction from its physiological description and here Korr has made a particularly useful contribution to the debate. (Korr, 1970) He argues that

human life, the kind you and I live and see in each other, does not consist of visceral activity.

Life is not a composite of the functions of the viscera. Man does not perform glomerular filtration and tubular reabsorption; he does not vasodilate; he does not constrict and he does not oxygenate; he does not peristaltic and he does not secrete. Life is not the sum of the activity of our internal organs, despite the preoccupation of medicine with those internal organs.

What does human life consist of? What does man do? Man does all the things that we see each other do. He moves, runs, works, plays tennis, builds buildings, paints pictures, makes ... love and war. He is creative. He teaches, learns, writes, educates, practises medicine, does surgery, gives osteopathic manipulations.

... Human life is expressed through the contractile processes of striated muscle. Every aspect of human life is acted out by the body's muscles and joints. ... So we begin to see that even the highest intellectual activity is lacking in value except insofar as it can be acted out, in and upon the environment and by being communicated to others. ... the musculoskeletal system is the primary machinery of life. (Korr, 1979 *ibid.*)

On this account, the rôle of the viscera, blood vessels and nerves is to integrate and support the musculo-skeletal system and facilitate a person's ability to live a life characterised by activity. What Korr is rightly questioning, is the assumption implicit in contemporary medicine, that taking care of the internal organs will ensure that a person is healthy and that being healthy enables someone to live a fulfilling life. He focuses on those things that affect patients. Life is valued not for the *general* ability to be human, but for the *specific activities* that characterise our being human. Lewis Wolpert argues that movement explains the evolutionary development of the nervous system and the brain. (Wolpert, 2000) As organisms began to move to catch food and escape predators so the ability to co-ordinate and integrate muscle activity made nerves and a controlling brain necessary. Wolpert argues that consciousness owes its origins to movement; in order to move appropriately organisms are required to be conscious of their environment and able to make choices about how to move. The centrality of movement and actions is an important concept that I will return to later in the thesis.

There are problems with Korr's account; he rightly highlights the integrated behaviour of the body and argues that it has a particular focus, i.e., human actions, which is the purpose of all physiology. But by referring to the musculo-skeletal system as the 'primary machinery' and placing it in a category different from and above that of other body behaviour he appears to undermine action's equal dependence on 'supportive' visceral function. In criticising conventional medicine for focussing over-much on viscera and ignoring the musculo-skeletal, he makes the same mistake by creating an imbalance to favour the musculo-skeletal structures.

A second problem for Korr, referred to earlier, concerns how 'somatic' is to be defined. Conventional medical practitioners have difficulty understanding what osteopaths mean by 'somatic', for in conventional medicine somatic is contrasted with psyche to mean (as its Greek origin, *soma*, infers) the physical part of the body (including viscera). Osteopaths use somatic to distinguish between viscera and the musculo-skeletal system of the body and here the problem lies. Muscles cannot operate without a blood supply or nerves and, even on Korr's account, nerves are an essential part of the expression and not merely for the support of human behaviour. Where, then, does the somatic side of the body begin and end? It is not easy to give a definitive answer to this which suggests an inherent weakness in the concept.

In addition, why is contraction of striated muscle more 'primary' than the contraction of smooth muscle in expressing human intentions? When someone just thinks about doing an activity, some of their viscera will change their behaviour to 'support' the thought-about activity. On this account, increased heart-rate, say, is as much an expression of intended action, as contraction of gluteus maximus and *all* human activity becomes the explanatory focus of body function whether musculo-skeletal or visceral. Running is characterised as much by changes in circulation as it is by quadriceps contraction, hence running as a cardio-vascular exercise.

Nevertheless the general point, that people value life because life enables them to perform activities that are valued, is an important one. The concept of somatic dysfunction

whether or not it has physiological credence, is important for its emphasis on the body as an integrated and dependent whole, plus the idea that modifications to one part can have repercussions in other, distant, parts.

1.4.3. *The concept of function in osteopathy*

It is clear from the above discussion of osteopathic principles and basic beliefs that the concept of function is fundamental to osteopathic theory.¹⁵ However there is no agreed definition of what function is and, as I shall argue below, there are a number of different ways in which the term function is used by osteopaths. Neither is it the case that function simply means physiology. Still, for example, focused primarily on anatomy, body structure and mechanics rather than physiology. In his *Philosophy and Principles of Osteopathy*, a chapter entitled 'Important Studies' includes a brief section on 'Physiology' which deals primarily with structure and castigates the local 'druggists' (*sic*) for deceitful practice.¹⁶ (Still, 1902 pp. 29-31) Still is dismissive of the idea that physiology could add to knowledge derived from anatomy. For example, he begins his brief account of physiology with, "Works on physiology at the present date are compilations of many theories and a few facts." (p.29) The introduction of physiology (in a form we would now recognise) to osteopathic theory didn't occur until Littlejohn and others introduced European ideas.

¹⁵ The most recent information put out by the Osteopathic Information Service, an arm of the General Osteopathic Council, describes osteopathy as "*an established, recognised system of diagnosis and treatment that lays its main emphasis on the structural integrity of the body. It is distinctive in the fact that it recognises much of the pain and disability we suffer stems from abnormalities in the function of the body structure as well as damage caused to it by disease. ... Its main strength, however, lies in the unique way the patient is assessed from a mechanical, functional and postural standpoint ...*" Although I would argue that this definition further highlights osteopathy's ambiguity over its identity – whether it is a branch of medicine which emphasises disease or different from medicine because it emphasises something else – the description does give function a special focus.

¹⁶ Still never lost his intense dislike and mistrust of drugs and medicines of all kinds. Osteopathy was publicised as 'drugless therapy'. He advocated surgery in extreme cases
cont ...

Still's teaching was based on 'function' as a natural consequence of normal structure, where normal and abnormal structure could be assessed through palpation and observation. What is of interest in the context of my thesis is Still's reliance on palpatory findings (which, I argued in 1.4.2.3.1, is a characteristic of osteopathy's use of somatic dysfunction); he used what he felt under his fingers as the basis for his diagnosis and treatment. Webster-Jones (1954) for example describes Still as using "his hands on the spine ... and in so doing he felt with his fingers the abnormalities." (p. 32) Puttick states that Still was led by his study of anatomy, "to consider first that the condition of the body could be determined by careful palpation, i.e., examination by feeling the surface of the body, and secondly that by careful manipulation, he could restore to normal functioning such abnormalities as he found." (Puttick, 1956 p. 20) Hildreth, who was in the first cohort of osteopathic students and worked extensively with Still, describes Still's examination and treatment in terms of gentle tissue probing and stretching, plus long-lever articulation of joints, all of which was guided by extensive knowledge of anatomy and a sensitive regard for what the tissues could teach the experienced practitioner. (Hildreth, 1942)

Careful reading of Still's writing and contemporary accounts of his work suggests that he didn't equate structure and function with anatomy and physiology in the way we do today. His philosophy was based on the idea that the body is a complex machine that will function, i.e., work well if it is properly adjusted in the same sense that a machine needs to be well adjusted.¹⁷ A vitalistic element runs through his accounts in the sense that a well structured and organised body machine will adapt and heal itself.

for the removal of necrotic tissue for example, but believed passionately that all the medicines needed for health could be generated from within the well structured body.

¹⁷ It is important to remember that Still lived at the time of mechanical technological innovation. Steam engines and mechanical aids held a particular fascination for him and it is natural that he took these as analogical for body function.

The different, some might argue muddled, ways in which function is conceptualised appear to have been inherent in osteopathy since the days of Still, for whom function equated to normal structure as observed and palpated by experienced ‘thinking’ fingers. At the same time, at a whole body level, the way a person stands, walks and moves is also regarded as a mark of their ability to function and the focus of the osteopath’s corrective treatment. Added to these has been the conventional understanding of function as physiology. These differences will form a focus for further analysis.

1.4.4. *Key challenges for osteopathy*

The challenge for osteopathy at the present time, therefore, is to establish its identity as a distinct profession in relationship to conventional medicine and the science-based foundation of medical theory.¹⁸ Osteopaths want to emphasise that their theory is rational and scientific, and yet that it takes account of the whole person including personal circumstances. This has led to an uneasy questioning of which side of the fence osteopathy belongs on as evident in the way political, educational and clinical decisions have been made in recent years.

In the run-up to the 1993 Osteopaths Act the profession had to decide whether it was part of conventional medical care, with the attendant risk that it could become absorbed into a bigger professional grouping, or offer something distinctive with the risk that it would remain on the fringes of conventional health care. The middle road, for osteopathy to be

¹⁸ Interestingly, the same issue is afflicting osteopathy on the other side of the Atlantic. Despite the greater size, wealth and status of osteopaths in the USA, they have never fully attained parity with their allopathic colleagues. In an editorial in the *New England Journal of Medicine*, Howell, an allopathic physician, outlined the history of osteopathy in the USA up to the present time and presents some interesting facts and figures relating to the contribution that the osteopathic profession makes to health care in the USA. (Howell, 1999) He concludes that there is little significant difference between the profession and that “many people – even osteopaths – question what osteopathy has to offer that is distinctive.”

integrated into the conventional system while offering a distinctive approach to care, is proving to be a difficult one to define.¹⁹

In 1992, an internal survey of BSO students soon to graduate, revealed confusion about the emphases on 'medical' and 'osteopathic' approaches to treating patients. (G. Dowdney & E. Adams, unpublished) Students felt that the distinctive osteopathic emphasis behind explanations and the management of clinical problems was being squeezed by a medical orthodoxy coming into the teaching of medical practice subjects. In other words, osteopathy had an interesting theory behind it, but at crucial times it was forced to fall back onto the medical model.

The dilemma over whether osteopathy is essentially conventional, accepting the prevailing beliefs and mores of the medical model, or is coming from a different set of beliefs, will form a focus for debate over the next few years as the profession establishes itself in the public health care arena. It is not a problem unique to osteopathy, or even to CAM. The relationship between science and medicine and the extent to which science is an appropriate validating discipline is again a live issue. (Delkeskamp-Hayes & Gardell Cutter, 1993; Forstrom, 1977; Foss, 1989; Gatens-Robinson, 1986; Greaves, 1979b; Tyreman, 1992)

The current challenge for osteopathy both in the UK and USA is to define itself as a distinct care profession. The difficulty is to show how osteopathy is related to conventional medicine while retaining its traditional craft knowledge. Much of this is seen to focus on the rôles that scientific validation and craft knowledge play in primary care, and the extent to which the whole of health care is based on scientific principles.

¹⁹ For a fuller account of this issue see (Tyreman, 1998). Also see (Edwards, 1990) for an account of osteopathy's entry into Higher Education. Also of interest is Colin Dove's article in the inaugural issue of the forerunner to the British Osteopathic Journal, in which he discusses "The place of medical diagnosis in Clinical Osteopathy." (Dove, 1960)

This includes defining the key foundational concepts of function, dysfunction, illness and disease.

1.5. Conventional medicine

Because conventional medicine is such a dominant force in Western society, in comparison with osteopathy, it would seem reasonable to assume that the challenges facing the two professions are at opposite ends of a spectrum. However, although they present in different ways, the same fundamental issues are at stake.

1.5.1. *Conventional medicine: an established profession*

A distinct characteristic of conventional medical practice (and a direct consequence of scientific validation) over the last hundred years or so has been the development of technological secondary care. The tendency to focus on secondary care, both in resource allocation and as the focus for education and research, has led some analysts to critically examine the assumptions that illness can adequately be explained purely in scientific terms and that care is a technological issue.²⁰ This has had the effect of renewing professional interest in medical general practice, which, since the 1960s, has had its own body of knowledge and practice values under the aegis of the Royal College of General Practitioners. It has also given some of the professions allied (and previously subservient)

²⁰ Since publication of the GMC's *Tomorrow's Doctors* report there has been enormous change in medical education. The most recent recommendation is to develop what is referred to as a PRISMS strategy for education which is an acronym for Product-focused (emphasising clinical practice and making teaching practice based where possible), Relevant (to communities and to students), Interprofessional (encouraging multiprofessional learning and interprofessional collaboration), Shorter (four year programmes for mature students and reduced emphasis on accumulating information), Multisite (putting students into primary care and community based health care more and reducing the emphasis on hospital teaching), and Symbiotic (ensuring that the medical curriculum will be an organic whole.) (Bligh, Prideaux & Parsell, 2001) This appears to be reducing the traditional emphasis on secondary technological care and beginning to recognise the importance of primary care.

to medicine – in particular nursing and physiotherapy – as well as CAM practitioners, the confidence to assert their own values with regard to patient care.

A brief review of the historical development of modern medicine in relation to alternative forms shows how the various traditions have developed and why conventional medicine has come to focus so much on hospital-based scientific care.²¹ A key battle is between practice based on rational theory, today represented by medical science, and that based on 'experience', professional judgement and non-scientific models. These have been described in terms of Rationalists and Empiricists or 'Empirics'. (Zaner, 1992)

1.5.1.1 The battle for supremacy between Rationalists and Empirics

In the Middle Ages in the UK there existed three groups of practitioners: licensed official doctors or Rationalists, who followed the theories of Galen, first expounded more than a thousand years earlier; unlicensed but skilled and knowledgeable practitioners, such as Paracelsus; and finally, the folk healers, otherwise known as 'Empirics' who used manual therapies, herbs and naturopathic remedies on an empirical basis.²² Gradually, by the 18th Century, the term 'Empiric' had given way to 'Quack' and become a term of insult, a way of questioning integrity, trustworthiness and competence.

But even at the beginning of the 19th Century, the licensed regular doctors were unable to claim superiority over the Quacks on either the grounds of a superior knowledge base or personal integrity and a more professional approach to patient care. Neither group was effective in dealing with illness. The only difference that Porter (1989) is able to identify is that the regular doctors tended the affluent and well-to-do, while the Quacks' services

²¹ A fuller account of this can be found in my MA dissertation (Tyreman, 1992).

²² Midwives and the barber-surgeons are examples of unlicensed but knowledgeable practitioners. See for example Marie-Christine Pouchelle's thesis on the French medieval surgeon Henri de Mondeville in which she describes the medical practice of the day. (Pouchelle, 1990)

were utilised by society's poor. But social respectability alone wasn't sufficient to provide the status necessary to establish the regular doctors at the top of the health care pile – in fact doctors generally were well down the social order as Anthony Trollope's novels, for example, make clear.

Three related events occurred to change the situation. The most important, because it gave credence and support to the other two, was the acceptance of germ theory and particularly the way in which Pasteur and Koch demonstrated, according to the scientific methodology of the 1870s and 1880s, that disease could be caused by microscopic organisms. This was aided by the use of Van Leeuwenhoek's microscope, which allowed these organisms to be seen. It was not a new theory, but derived from the ancient theories of contagionism which Semmelweiss, the Viennese obstetrician, had resurrected in its modern form some years before. The new feature was that it could be demonstrated according to scientific principles, a point later to be developed by Koch in his famous postulates.²³

The second significant factor was political. The state was gradually realising the importance of having a regulated and controlled medical system, a notion derived from Bentham's utilitarian ideas. Disease is wasteful and, in the context of the well established industrial revolution, it was important that industry had healthy, reliable labour. Doctors were therefore appointed and paid for by governments, not only to treat, but to inspect and advise.

Finally, the threat of cholera epidemics throughout the 19th Century, created fear in the population at large. Fear threatened law and order which made it necessary for governments to take action. (ten Have, Kimsma & Spicker, 1990 p.15)

²³ These in turn were derived from a set of principles proposed by Henlé in 1840. (Henlé, 1840)

So the end of the 19th Century saw a professionally controlled and legalised medical orthodoxy, responding to the challenges of plague and pestilence with a rationalism based not on Galen nor any ancient writer but on science. Science and scientific methodology would form the mould for the medical model in the hope that medicine could solve by reason what empiricism could only guess at.

1.5.1.2 *The medical model*

Twentieth Century medical endeavour can be characterised by two significant developments, the rise of technological medicine and the desire to base medicine on a secure knowledge base, specifically, one rooted in science. Gillett argues that this is the continuation of a scientific tradition reaching back to Hippocratic times for which the emphasis was on ‘knowledge rather than opinion’. (Gillett, 1995) Underlying this is the belief that science provides the best means for understanding and combating illness with certainty and confidence. Scientific knowledge is, it is claimed, objective, verifiable, repeatable and rational, all the qualities that medicine seeks in establishing itself as *the* way of understanding and controlling illness. How then, does medicine marry the methods and assumptions of science with human health issues? What, in other words, is ‘the medical model’?

The answer to this question is not simple, for at different levels different models can be seen to operate. To give some obvious examples: the work of a nurse in reassuring a sick and frightened child cannot be explained in the same terms as that of a surgeon performing a heart valve replacement (van Schie & Seedhouse, 1997); mental illness depends on some resolution of the mind-body problem. Added to this has been the acceptance that psychological, social and cultural factors have important parts to play in illness, but, as I will show later in my analysis of the case studies, it is unclear how they relate to biophysical explanations which remain core in conventional medicine. The establishment of double-blind trials as the gold standard for medical research further emphasises the deliberate exclusion of human influence from the effects of treatment.

At a more fundamental level, ten Have examines the effect that the cholera outbreak of the 1830s had on medical theory in Europe. (ten Have, 1990) At the time the theory of contagionism was competing with the theory of miasmatism as an explanation for illness in infections. By the end of the 19th Century contagionism had become the dominant model and with it a method of investigation that continues to emphasise scientific biophysical explanations.²⁴ What form do these explanations take?

David Greaves offers an explanation for the medical understanding of illness. (Greaves, 1996 Chapter 5) He quotes from the same work of ten Have mentioned above, where he explains why contagionism finally defeated miasmatism. Ten Have writes:

Because of its precise results as well as its explanatory power, the infection-model turned out to be the most powerful paradigm of modern scientific medicine; it still represents for many philosophers of medicine the core of the biomedical model of disease and treatment. This model has come to define the nature and role of modern medicine. (ten Have 1990 p.17)

What won the day was Pasteur's demonstration that infections are passed on through vital particulate entities, plus the application of Koch's postulates, which provided a structure to enable investigators to gain secure knowledge of the cause and effect of

²⁴ Although contagionism boosted by Pasteur and Koch's discoveries became the predominant model, the situation is more complex and miasmatism is still seen in the claim that 'disease is not an individual affair but a product of the environment.' (ten Have et al., 1990 p.21) This fits with Roy Porter's claim that human disease is largely the result of nomadic man 10,000 years ago adopting an agricultural and domiciled existence in which the new environment allowed disease to develop, by for example, crossing from animals to man, and for the agricultural 'reliance on starchy mono-cultures like maize, high in calories but low in proteins, vitamins and minerals, to reduce nutritional levels and allow deficiency diseases like pellagra, marasmus, kwashiorkor and scurvy to make their entry onto the human stage. (Porter, 1997 p.17-21) Because of the initial dramatic success of infection theories in explaining disease and informing treatment methods, the rôle of the environment, or miasmatism in a modern form, was largely ignored. This despite the work of Virchow on emphasising cellular context in the development of pathology and of Claude Bernard on the interaction between organism and the environment. (Dubos, 1979)

diseases.²⁵ Greaves argues that Koch's central claim was that 'diseases exist as independent and factual entities which can be objectively defined for all time'. (*op cit* p.52) Three elements entailed by Koch's account are necessary for properly defining a disease; the causal agent, pathological lesion and clinical syndrome. This trio has provided the basis of most scientific medical investigation since then. Clinical signs and symptoms are linked to a pathological lesion and to a causal agent. The main task for a doctor investigating a patient with a new illness is to interpret the clinical signs in terms of a pathology.

Greaves makes a number of pertinent criticisms of assumptions associated with this model. It is not my task here to explore the criticisms as such, but to show the model's influence on medical theory and clinical thinking. These can be summed up in the following:

- ❖ that illness is explainable in biological terms;
- ❖ medical knowledge is scientific and value-free;
- ❖ the proper function of the doctor is to find and eliminate disease;
- ❖ health is the absence of disease;
- ❖ disease is a key conceptual component defined in terms of normal biological functioning and specific aetiology. It follows that there is a universal disease taxonomy that is potentially completely discoverable. (Adapted from Greaves, 1996 p.50)

Greaves points out that Koch's original unifactorial disease model was modified in the light of experience to allow for multiple causal factors. However, as I have already

²⁵ The postulates state that:
1) the organism is always found with the disease in accord with the lesion and clinical stage observed;
2) the organism is not found with any other disease;
3) the organism, isolated from one who has the disease and cultured through several generations, produces the disease (in a susceptible experimental animal).

hinted, the way additional factors, including psychosocial, are handled damages the elegance and simplicity of the original conception. The introduction of risk factors for example, provides the practitioner with little practical help in deciding what to do for any particular patient.

Another assumption that underpins the medical model is that there is an ideal state of being human that is potentially definable in terms of physiological parameters. Once what is physiologically normal has been determined biostatistically, judgements of whether or not someone is healthy are made by measuring physiological activity. If all physiological measures fall within normal limits there can be no disease and therefore the person must be healthy. As the ability to measure becomes more sophisticated the confidence associated with these judgements should increase. This assumption is no different in principle from Still's assumption that normal structure must lead to good health and the absence of disease. Because this concept is fundamental to the concept of function – the extent to which good function is measurable by physiological parameters – it will form the focus for later analysis.

1.5.2. *Key challenges for conventional medicine*

A key challenge for medicine today is to continue to benefit from scientific knowledge and methodology without losing the humanitarian element from practice. The tendency to address illness through biology rather than from human experience may be seen to be a defining characteristic of modern medicine.

This is linked to a debate about the relative rôles of “instrumentalism” and “professional artistry” in medical education. (Fish & Coles, 1998) It is argued increasingly that practice, particularly primary care practice, is more than the competent application of skills and knowledge; that there is a ‘practical knowledge’ based on professional values and mores. (Eraut, 1994; Fish, 1999) Some commentators have linked this with the Aristotelian notion of phronesis. (Carr, 1995; Coles, 2000; Squires, 1999) The GMC's 1993 *Tomorrow's Doctors* report on medical education initiated a major shift in the focus of teaching institutions.

(See Footnote 20) This aimed to reduce reliance on knowledge accumulation while increasing the emphasis on critical analytical skills and the explicit development of professional values.

This suggests that there is an ideological battle going on between those who believe that all important medical problems will be solved through things like the 'genome project', and critics of scientism who argue that human health is more than biological probity. Proponents of a welfare approach to health problems, such as Nordenfelt (1995), argue that loss of health entails such things as failure to achieve 'vital life goals'.

Mori describes a more radical situation by claiming that medicine is undergoing a paradigm shift the effects of which, in his view, warrant a change of name from "medicine" to "health care". (Mori, 2000) His point is that knowledge of the fundamental workings of the body are now so advanced, 'the concept of health is no longer a "natural given" and interventions on the human body attempt not only to help "nature's teleology" but also to change it whenever doing so can satisfy human needs and wants.' (p.723) The focus of health care is moving from educated guesses about how to help nature achieve a cure to designer health, i.e., the ability to manipulate body mechanisms in order to achieve particular ends. Here, aesthetic surgery, reproductive techniques and transsexualism perhaps point to the direction health care (not medicine) will go. If so, then clearly these will be informed and guided by values rather than science which will merely provide the knowledge and technical support.

Despite the apparent disparity between conventional medicine and osteopathy, the challenges facing both are similar, i.e., clarity and congruence with respect to the conceptual foundation of theory and practice.

1.6. Function: a *prima facie* point of contact between osteopathy and conventional medicine

Conventional medicine and osteopathy remain unclear about the rôle that science and science-derived disciplines play in practice and theory. A key claim of this thesis is that the concept of function crosses the theory-practice divide in both professions. Function both explains clinical phenomena theoretically, and contributes to clinical judgement practically. Specifically this focuses on two areas of function, 1. as the subject matter of physiological explanations (for which I use the notation, F_{phys} and its parent, F_{biol}) and 2. as the integrated activity/abilities of a person (which I term F_{glob} to denote the actual global ability of an individual). The latter emphasis is perhaps more explicit in osteopathy than it is in conventional medicine, particularly hospital based secondary care.

For the moment I will ignore problematic issues in the concept of function related to knowing which of a part's traits are functions and the (inferred) teleological implication of explaining the presence of a trait in terms of its purposive effect. These matters will be addressed later in the context of examining whether biological concepts of function are equivalent to medical usage. However the outcome of that analysis may turn out, function is a *prima facie* point of contact between conventional medicine and osteopathy. Both professions use the same term and, to the extent that they can communicate meaningfully with each other, share some degree of conceptual understanding.

Function is used both clinically and theoretically. Practitioners judge how well a part is functioning and treatment can be aimed not just at eradicating (or managing) a disease, but at improving function. Dysfunction is commonly used in osteopathy to describe a biological state that is not actual disease, i.e., there may not be any pathological changes evident, but where the tissues are failing to function normally and, in the judgement of the practitioner, are causally linked to a patient's problem. In conventional medicine, too, the idea of functional disorders is common. Here it contrasts with organic or pathological disorders in which there is evidence of pathological change. At a theoretical level,

knowing what the normal function of a part is, is a prerequisite for understanding what rôle it plays in the body economy. Knowing an item's function (as opposed to just knowing what its properties are) allows it to be contextualised in relation to other items and events in the body.

Despite the common ground that function terms create between the professions, it is clear that function is used in a number of different ways both between and within professions. Much of my analysis will be aiming to define these in order to identify the common ground and differences between them.

1.6.1.1 *Four uses of function in osteopathy*

From my review of the background and historical analysis of osteopathy four uses of the word function, F_{ost} are tentatively suggested as typifying osteopathic usage: function as physiology, (which I denote as $F_{ost-phys}$) function as an integrated global activity of the person (which I denote as $F_{ost-glob}$); function as biomechanical integrity (which I denote as $F_{ost-glob(mech)}$); and function as a palpable sense of tissue quality (as defined by a number of osteopathic writers including contemporaries of Still) (which I denote as $F_{ost-palp}$). The first sense of function is clearly shared with conventional medicine, there is some degree of common usage with respect to the second and possibly the third which may be a subcategory of the second, while the fourth, the attempt to describe function qualitatively in terms of palpable phenomena, may be a distinct feature of osteopathy. From this categorisation the question of what, if anything, they have in common, emerges. Either 'function' is a homonym of four different and basically unrelated concepts, or there is some deeper unifying concept that is foundational to all four. (It is also possible that one is foundational to the other three.) Until this can be resolved F_{ost} is assumed to entail $F_{ost-phys}$, $F_{ost-glob}$, $F_{ost-glob(mech)}$ and $F_{ost-palp}$.

1.6.1.2 *Two uses of function in conventional medicine*

Conventional medicine is largely defined by its technical skills and scientific knowledge, which together with the assumption that there is only one concept of function means that

the main focus of interest is on biological function in the form of physiology, (denoted as $F_{\text{med-phys}}$). However, as already noted, the craft/art element of medical practice, particularly in General Practice, has been receiving renewed interest. From the case studies and some published material this is seen to be based (as with osteopathy) on the notion of the ability of the person to perform taken for granted daily activities. Because the interest of the patient and practitioner is on restoring normal (or near normal) activity and thus to function normally in a global, context, the term $F_{\text{med-glob}}$ will be used to describe this use of function.

Conventional medicine therefore appears to use two concepts of function, ($F_{\text{med-phys}}$ and $F_{\text{med-glob}}$). Although $F_{\text{ost-palp}}$ does not appear to have a correlate in conventional medicine, it is possible that there may be parallel medical investigations that form an important part of conventional practice. It is also probable that conventional medicine has a number of subcategories of $F_{\text{med-glob}}$ relating to the special interests of cardiologists, urologists and so on. Nevertheless, these different foci on function are not as explicit in conventional medicine as they are in osteopathy.

Chapter 2. The use of Function in Clinical Theory

Chapter 2 explores the rôle function plays in medical and osteopathic theory. It establishes function's logical relationship with concepts of disease and illness which it informs in significant and necessary ways. The Chapter maps the relationships between elements in the basic function statement, 'The function of x is to do y ', where x is some part (or behaviour) of an organism and y is a beneficial goal, and goes on to ask what this means for the way function informs dysfunction, disease (F_{dis}) and illness (F_{ill}). It concludes that the context in which y occurs is an essential, though usually covert, element requiring further analysis.

The Introduction noted ambiguities and lack of clarity about the way practitioners, and particularly osteopaths, appear to use function ascriptions. Physiology is assumed to be the scientific study of function and physiological mechanisms describe a part's function (F_{phy}), but function also refers, in a global sense, to an overall ability of a patient where the aim of the practitioner is to restore the *person*, rather than just their biological parts, to 'normal function' (F_{glob}).²⁶ In addition and perhaps entailed by this global sense, body parts, and for osteopaths specifically the musculo-skeletal system, are considered to function together in an integrated and inter-dependent way. A consequence of this for osteopathic evaluation and diagnosis²⁷ is to emphasise, not just the normal functioning of

²⁶ Practitioners focus primarily on F_{glob} whether or not $F_{glob} = F_{pt}$. My point is that the capacity of F_{glob} (as the actual global capacity of an individual) to enable the person to do the things they take for granted is the primary reason for consulting a practitioner. It is F_{pt} that informs them of what they can take for granted, but usually remains covert.

²⁷ I deliberately link evaluation with diagnosis as this is the way that it is taught at the BSO. In an attempt to distance osteopathy from the medical emphasis on disease diagnosis and to encourage students to look at the way one part of the body is affecting other, perhaps more distant, areas they are asked to 'evaluate' what is happening. My thesis goes some way to make more explicit what this entails.

parts, but the way one part affects the whole and is itself affected by the behaviour of distant parts.

Superficially it might be assumed that global function (F_{glob}) is no more than an aggregation of local physiological functions (F_{phys}) which would mean that F_{glob} is $F_{\text{phys1}} + F_{\text{phys2}} + F_{\text{phys3}} + \dots + F_{\text{phys-n}}$. This is certainly a basic assumption of conventional medical practice which focuses, at least in its theory, on F_{phys} on the grounds that if $F_{\text{phys1-n}}$ operates normally then F_{glob} will be normal as well. I will be challenging this assumption on two main fronts; the first by examining the way practitioners use function terms in practice. When actual cases are examined it becomes apparent that all practitioners, but particularly primary care practitioners, use F_{phys} and F_{glob} in distinct and meaningful ways to make clinical judgements. The second challenge comes from examining the construction of function ascriptions to ask how we know what a part's function is and how this informs the foundational concepts of illness and disease. A key element for this examination is the rôle that context plays.

2.1. The work of function ascriptions

Clinical work involves two common tasks, assessing the contribution a behaviour or property makes to the total body economy and judging whether it is a significant factor in explaining a patient's problem. The usual assumption is that these constitute one task – knowing the operational properties of a part means knowing about the problem.

I aim to demonstrate that this represents two separate events that are not necessarily connected. One entails knowledge of the 'normal' behaviour of a part, which enables a practitioner to judge how it is operating, and the other, knowledge that the part is causally related to the problem, which guides the practitioner in managing the condition. So a patient with condition c may demonstrate failure of body part p , but that doesn't necessarily mean that the failure of p is a cause of c – knowing that p is failing and

knowing that the failure of p is also causal in c are two separate, though equally important, issues.²⁸

If this is described using function terms, then, knowing which traits are the proper functions of p is different from knowing that p is a function, loss of which leads to c . Knowing how function terms operate in concepts of dysfunction, illness and disease will get us closer to knowing how the concepts embedded in function terms become covert parts of the language of disease and illness.

Fundamental to both these tasks, and arguably the one that unites them, is the assumption that body parts do have functions – they do things that have purposes necessary for the good of the organism, however that is going to be defined. To judge that a part has failed, requires a referential standard. To know that these activities (or their failure/malfunction/absence) also has a causal rôle in some disease states assumes that there is a necessary connection between the (failed) function and the disease. Putting these together leads to the conclusion that what the part *normally* does is what it *should* do if the body is to avoid disease. Disease, on the medical model, is assumed to be a deviation from normal healthy activity. In other words, if parts function together in a proper way, health will be maintained as long as that proper behaviour continues. Function failure therefore leads to loss of normal, i.e., healthy, activity.

This is usually summarised in the basic function statement, '*The function of x is to do y* ', where x is an item (structure or behaviour) and y its (proper) effect and goal. This requires further analysis for it is not clear how not doing or the inability to do y affects x , nor is it clear that the statement reveals all that can be said, for there are two additional implicit and assumed elements that are necessary to the formula: those particular

²⁸ This commonly occurs in musculo-skeletal problems where x-rays are taken just to see if something is wrong. If an abnormality is found it may be assumed (frequently wrongly) to be the cause of the problem.

properties (selected from all its properties) that give x its functional capacity, and the context in which y (the effect of the functional capacity) occurs that enables y to be the proper goal of x . This relates to the tasks I've already outlined, where it is for the practitioner to decide whether a part is functioning well which depends on knowing about y , and deciding whether x (doing or not doing y) is a causal factor in the problem. My argument will be that it is not possible to know these without knowledge of the context in which y is operating. One of my tasks is to discover how x and y are determined and what the (logical) relationship between them is.

Although the concept of function is fundamental both to conventional medicine and osteopathy, it would be wrong to assume that the term is understood in the same way. Let us start by assuming that there are (at least) two different (and irreconcilable) concepts at work in these professions. (If we find later that these are the same, or that one of them is false, we can return to the hypothesis that there is only one (correct) concept. Or we might need to expand the range to include a large number of concepts.) For the purposes of this analysis, function as emphasised by the osteopath is termed F_{ost} and as emphasised by the orthopaedic surgeon, F_{med} .²⁹ There are other conceptions that will need to be considered in the course of the analysis because I have already suggested that both professions might be using the same concepts though with different emphases. If they are different the differences are likely to be due to elements lower down the concept tree, i.e., F_{ost} and F_{med} are not basic concepts, but informed by others. What these others are is not yet clear, but it is likely that they will be linked to areas where function is an important concept, such as biology (F_{biol}), illness (F_{ill}) disease (F_{dis}), which have their own specific interpretations e.g. those of naturalists (F_{nat}) and normativists (F_{norm}). In addition,

²⁹ I have chosen to use the term F_{med} as a generic term to cover orthopaedics, general practice plus all the other specialisms within conventional medicine to avoid the confusion of using a variety of subdivisions such as $F_{med-orth}$, F_{med-GP} , and so on. As I will attempt to demonstrate, the differences between the subdivisions (and between F_{med} and F_{ost}) lies in the way the constitutive elements are balanced.

comparison can be made with functions of artefacts, and it can't be assumed that F_{biol} encompasses all biological concepts of function though Boorse (1976), for example, assumes that F_{biol} is the same as his naturalistic account, F_{nat} .

These specific function terms share the same basic structure and can be expressed through a generic formula:

(1) *The function of x is to do y*

Where *function* can be F_{ill} , F_{ost} , F_{med} , F_{dis} and so on.

In this formula *function* is defined in terms of two explicit components (though as I outlined above and will argue later, it entails others that are implicit), the item that is functioning, x , and the function that is being performed, y . What x refers to in this formulation is reasonably clear as the item (part or behaviour) under investigation, but it is less clear what y signifies. Is y more than the description of a property – a biological way of stating factually what x does – or does y entail additional covert factors? Answering this will require two stages of analysis; the first to discover what meaning is conveyed by y and whether the full extent of the meaning is explicit in the statement. If not, if there are implicit meanings, then the second stage is to make these meanings explicit in order to see how necessary they are to the concept of function.

There will be two possible outcomes from this second stage of analysis; the first is that y is simply one property or behaviour of x that is selected by biologists, practitioners or whoever, for some reason, in which case the issue is why this rather than another trait is designated as x 's function. The second possibility is that implicit factors not included in the formula are necessary, though perhaps not sufficient, for y to be the function of x . In the first, y is sufficient for assessing an item's function, once it is clear where y comes from; in the second, y is supplemented by other, yet to be identified, factors.

The purpose of the analysis is to discover, in the first place, whether knowing what x and y are is sufficient for describing a function. Function statements are usually expressed in accordance with form (1); 'the function of the heart is to pump blood'; 'the function of the

Rectus Femoris is to flex the hip'; 'the function of flirting is to attract a mate', and so on. Does this way of describing function fully encapsulate the explanatory rôle of function statements? Is a function statement no more than a description of a particular state of affairs? If it is, then ultimately it will reduce to a form which is similar to other descriptions such as, 'the colour of grass is green', and represented by:

(1a) *the function of x is y.*

The issue for my analysis is whether function statements are different in principle from formula (1a) and if so, what the difference is. The obvious difference between (1a) and (1) is that 'is' replaces 'is to do'. A great deal will therefore hang on what 'is to do.'³⁰ means. I will argue that the way this innocent sounding conjunction is interpreted is crucial for gaining a proper understanding of function. For example it does not follow logically from (1) that, *if x, then y* (though it might for 1a) and if there is no logical connection between *x* and *y*, then what kind of relationship is it? This forms a focus for analysis both here and in Chapter 5.

I am looking to discover whether what is explicit in *y* is sufficient on its own to explain the function of *x* or whether other hidden factors are implicit and assumed by *y*. If *y* is sufficient on its own (with *x* accepted as a given), then *y* will be represented in definitive, categorical ways as describing *x*'s function. If *y* is not sufficient, if it turns out that *y* entails necessary implicit conditions, we will need to know what those conditions are before we can know fully whether *x* is functioning. The primary task will be to define the conditions required to know the function of *x*. So, depending on the outcome of the analysis, where *y* is sufficient function can be described in categorical, non-conditional

³⁰ The verb, 'to do' is used here in a general sense but can be replaced by more specific conditions, such as 'to achieve', 'to produce', 'to provide', etc. However, the basic sense is not altered.

language, but where y is insufficient to define the function of x , function will be couched around with conditions and caveats.

To give an example; if I am wanting to assess someone's knee using x-rays, I can make a judgement in two ways, first by comparing what I see with normal 'text-book' knee x-rays. This may lead me to make the judgement that there are degenerative changes in the joint that might indicate poor function. However if I am told that these are the x-rays of a ninety year old woman, I change my opinion and say that the joints look very good 'for someone of her age.' In this case, I would expect her joints to function well, given her age. Clearly I am not making a judgement about how well x is functioning against y alone. In the same way, breathlessness in a person who has just moved to live at high altitude would not be regarded as dysfunction, unlike breathlessness in someone living at sea-level. Of course although the person's cardiovascular system may not be dysfunctioning, the *person* would be unable to function and this might prompt a practitioner to intervene therapeutically. If I have a number of patients' cardio-vascular functions to assess, I assume (as most doctors do) that they all live at similar altitude and I will judge their test results on that basis, or I will want to know where they have been living recently. In both, I assume or make explicit certain parameters that are implicit in statements about y .

2.1.1. *Issues for further analysis*

What emerges from my analysis is the suggestion that there are two distinct modes of enquiry related to function. One is concerned to know that a particular example of x is in fact doing y as it should, and assumes that y can be known unconditionally. The other is concerned to determine what the conditions are that make the doing of y x 's function. A full analysis of these will require examination of a number of other issues: the significance given to particular traits and determining which traits are proper functions; the importance of goals or ends; the teleological implications of function statements; the rôle that context plays; and what kind of explanation function statements provide. In addition there is the question of whether function can be described in value-free terms or is necessarily evaluative.

The assumption with which I began this Chapter, that F_{glob} is $F_{\text{phys1-n}}$ is now seen to depend on secure knowledge of y . Examination of how secure that knowledge is forms the subject of Chapter 5, but there is further preparatory work to be done. First, we need to examine how function informs concepts of dysfunction, illness and disease in order to discover not just why function concepts are important for practice theory, but how the concepts entailed by function also inform illness and disease.

2.2. Function in concepts of dysfunction, disease & illness

Dysfunction, disease and illness are foundational concepts in medical and osteopathic theory but with differences in emphasis. The focus (and arguably, strength) of the medical model is in explaining illness in terms of diseases. Osteopaths tend to favour the term dysfunction rather than disease, particularly in cases where there is no gross pathology.

Before examining the rôle that function plays in defining dysfunction, disease and illness, I will make a few general observations. It is widely agreed that illness, as the subjective experience of a particular state of health, is broad and evaluative. (Boorse, 1997, is an exception to this.) By contrast, disease is more clearly a medical concept, that is, it is used in a technical way by medical practitioners and may entail significant differences from its lay use and meaning. In ordinary usage, disease and illness can be synonyms; to say 'he is suffering from a disease' is equivalent to saying 'he is suffering from an illness.' We would not normally say that someone 'is diseased' though we might say that they are ill.³¹ So while someone would *have* a disease, they would *be* ill. *Being* ill is therefore a state of being of the *person*; it is something they are. Having a disease is assumed to affect and to

³¹ Interestingly we would say that a plant was diseased rather than ill, but the situation with animals is ambivalent. We might describe our pet cat as ill, but not an earthworm, for example. Some sentient ability seems to be necessary for illness to be experienced. Where
cont ...

be knowable from examination of a (abnormal) *part*. Focussing on illness provides a broader perspective and requires knowledge of the whole person or, at least, greater parts than is required by disease, while focussing on disease entails analysis of the abnormal behaviour of local parts.

Although it is assumed that illness and disease are related to each other, there is no clear agreement about what the relationship is. The conventional view is that disease explains illness and the logical development goes from pathology (abnormality or dysfunction in tissues), to disease (the biological consequences of the pathology plus its aetiology), to the effects of that disease on the person, i.e., illness. The progression from normal health to illness is thus, normal function → abnormal function (dysfunction) → disease → illness.³² This is based on the assumption that because disease is a *causal* explanation of illness, illness must be *logically dependent* on disease.

Fulford (1989; 2000) argues for a “reverse view”, i.e. starting logically from illness and moving to disease, on the grounds that illness is the primary experience that prompts investigation and diagnosis. In clinical practice a person consults a practitioner because they feel themselves to be ill or fear they might become ill and seek an explanation for the illness. Diagnosis, as the explanation for the illness, comes (secondarily) usually, in the form of a diagnosis of disease or dysfunction. So, although disease may be *causally* linked to illness, illness *logically* precedes disease. The point is reinforced by Fulford’s additional claim that disease is an evaluative concept. (1989; pp. 57-71) Dysfunction and disease are simply human states that are valued negatively because they cause pain, disability or in other ways impair human activity, all of which are normally associated with illness. This

our intuitions suggest that an animal is suffering, we use the term illness, in other cases, disease.

³² Fulford refers to this as the “naturalisation cascade” which he contrasts with his evaluationism in which the cascade is reversed so that illness (with all its values) cascades down to disease, dysfunction and function. (Fulford, 2000)

leads him to conclude that illness is “action failure”. (*ibid.* pp. 109-149) I have more to say on this later.

It is clear that the way function is conceptualised is important for the way illness and disease are understood. A key issue is what drives what; does function as a value-free scientific fact inform dysfunction, disease and illness, or is illness the dominant concept that determines which behaviours (which *ys*) are functions? What is the relationship between function and dysfunction?

2.2.1. *Function & dysfunction*

That there is a logical relationship between function and dysfunction is *prima facie* self-evident from the language terms. What the relationship is, in particular what differentiates an item that is functioning from one that is dysfunctioning and what kind of ‘not-function’ dysfunction is, is more problematic. Dysfunction is a key logical stage in explaining the change from normal (healthy) function towards disease and illness, and infers an outcome that is bad for the organism. Much rests, therefore, on how ‘normal’ function is determined.

The literature broadly divides into naturalists, who argue that function can be described non-evaluatively, (See, for example, Boorse, 1975; Lennox, 1995; Millikan, 1989; Wakefield, 1992), and normativists, who argue that values are unavoidable features of function ascriptions. (Agich, 1983; De Vito, 2000; Fulford, 1989; Nordenfelt, 1995b) Neither camp fully agrees on what their accounts should look like and I will be examining some of these in more detail later. For the moment it is enough to recognise that a fundamental difference between the two views rests on how *y* should be interpreted in statement (1) ‘The function of *x* is to do *y*.’ On the naturalistic account (F_{nat}), *y* is determined from statistical analysis or examination of its history, and if *x* is not doing *y* then it is dysfunctioning, which can mean failing to do *y*, or doing something other than *y*. On the normative account (F_{norm}), *y* depends on additional contextual factors and the focus of interest is on what those are. On both accounts, the doing of *y* is the proper outcome and goal of *x*.

It is generally accepted that Christopher Boorse's formulation of disease is one of the strongest defences of the naturalistic view that diseases are real states and can be known through the science of pathology. Boorse, (1997) takes pathology to be the study of disease, and claims that pathology is therefore medical science *par excellence*. (p.52) He stresses that his main purpose in describing what Nordenfelt terms the Biostatistical Theory (Nordenfelt, 1995b p.15), is to analyse the normal-pathological distinction, which he claims is the theoretical basis of Western medicine. (Boorse, 1987) (From now on I will follow Nordenfelt and Boorse's convention and refer to Boorse's biostatistical theory as the BST.) Boorse is especially keen to emphasise that the BST is a *theory* and not an attempt to describe the *practice* of medicine which he agrees is value-laden.

Boorse explicitly bases his BST on function in accordance with Sommerhoff's definition of the goals of an organism. (Boorse, 1997 pp. 8-10) He states, quoting his own previously published work:

An organism or its part is directed to goal G when disposed throughout a range of environmental variation, to modify its behaviour in the way required for G. ... On this analysis of goal-directedness, most behaviour of organisms seems to contribute to many goals at once: "individual survival, individual reproductive competence, survival of the species, survival of the genes, ecological equilibrium, and so forth" (Boorse, 1977 p.556). ... since physiology was the subfield on which somatic medicine relies, medical functional normality was presumably relative to the goals physiologists seem to assume, viz., individual survival and reproduction. (p.9)

Thus for Boorse (and Sommerhoff) goal-directedness is the key feature 'dividing living organisms from dead or inorganic matter'. Boorse accepts that it would be possible to base his theory on a different concept of function, such as Wright's aetiological theory (Wright, 1973), which uses the historical analysis of traits to explain an organism's presence. But both the goal-directed and aetiological theories are based on a view of

function that assumes that the “proper” function of an item can be known.³³ The key point is that living things can be distinguished from non-living because they exhibit proper natural functions, where a proper function is a trait that aids survival and reproduction, whether this is known from examining the organism’s history or its present behaviour. This is a crucial distinction between naturalism and normativism. The normativist view is that health is a welfare-like concept – a state that is good for us and which we therefore value. If Boorse is correct in his assumption that the natural inorganic world does not engage in functional activity, on the naturalistic view it remains only to distinguish biological functions from the functions given to artefacts.³⁴

Boorse explicitly bases his BST on one particular conception of function (Boorse, 1976; Boorse, 1997, pp. 8-10). According to this view, by knowing what an item’s function is it is possible to know when an item is failing to function and therefore to identify when there is or is not a disease. On this account, disease is the result of dysfunction and though logically it is possible to have dysfunction without disease – an uncomplicated fractured bone for example – all disease necessarily entails dysfunction. The concept of disease is thus based on the ontological assumption that there are real states of function and dysfunction, plus the epistemological assumption that these normal and abnormal states can be known through biostatistical analysis. It follows that, according to the BST, disease and function must both be real ontological states – there are real diseases defined according to disturbances in proper functions. This conception of function (usually referred to as “proper function” and analysed in depth in Chapter 5), assumes that the

³³ Boorse uses the fact that he could adopt either theory of function as the basis of his BST to support his claim that his analyses of health and function are separable, i.e., one is not logically dependent on the other. (1997, p.10) But he fails to address exactly what it is about function that leads him to assume that it is the basis of health and disease despite it not being logically dependent. He cites Sommerhoff’s beast—dung distinction and claims that goal-directedness is the defining factor, but then seems to adopt survival and reproduction as the basis of his theory.

³⁴ It would be difficult to defend the view that the natural inorganic world engages in functions. However that doesn’t preclude the possibility of developing a teleological view of the natural world. (Stout, 1996)

statement, 'x is the function of y', describes a biological item factually, i.e., is descriptive and value-free. Function language as it is used in relation to disease is therefore based on the biological properties and behaviours that an item properly has. Analysing function thus involves judgements about whether what is observed falls within normal limits.

Naturalists view living organisms as semi-autonomous, goal-seeking mechanisms whose primary purpose is to survive and reproduce. At the individual level survival is demonstrated through the way an organism seeks to adapt to environmental challenges in order to live long enough to reproduce, and at the species level survival is expressed through reproduction and the ability of organisms to thrive from generation to generation. The focus of interest is the internal processes and organisation of the organism. Functions are judged to be healthy when the organism's internal processes cause it to behave in species-typical ways. In principle, if the parameters of an organism's physiological activity can be measured against the species-typical standard, it is possible to make a definitive judgement about whether or not it has a disease or is healthy. Function, on this analysis, is described in terms of whether or not the behaviours and properties of specified parts meet the referential standards that are typical of the species.

Naturalists and normativists agree that function statements are informed by goals. The disagreement is about what those goals are and how they can be known. Normativists, emphasise 'goal' as some purpose of the whole organism. For them, good function is not just a matter of operating within normal physiological parameters and adapting to hostile environmental conditions, it is about being an agent and engaging with the external world in ways that meet personal goals. (Nordenfelt, 1995b) F_{norm} is therefore described in terms of the activities of the person in the context of their social and environmental circumstances. These activities include internal mechanisms similar to the ones the naturalist focuses on – the inability to achieve a goal may be due to the failure of some important part to operate – but will not be confined to them and, importantly, will not be defined by them. The normativist/welfare view of 'goal' depends on understanding the external environment, or context, in which an item is operating. Without knowledge of

the context in which 'goal' is located, it is not possible to make a judgement about good and bad function.

Two *prima facie* differences between the naturalist and normativist's understanding of 'goal' in function can be summarised: for the normativist, 'goal' ultimately depends on the interests of the whole person (and by analogy the animal, the plant or other life form). The normativist cannot judge what an organism's goals are, or whether it has achieved its goals, without explicit reference to the goods of the organism and the context in which functions take place. The naturalist defines 'goal' in terms of species typical behaviour without explicit reference to the organism or the context of the behaviour. Goal, here, is a subcategory of survival and reproduction, knowledge of which is not dependent on the context in which it takes place, only that it happens successfully. Neither does it have to relate to the goals of the *whole* organism; component items can have 'goals' in the sense that a cell has a particular function to achieve in the context of an organ, and the organ in the context of the organism. Given, say, a muscle, the function of actin and myosin filaments can be known from knowledge of the behaviour of the muscle alone – it's not necessary to know which animal the muscle is from or even which muscle it is or what action the muscle enables. From this information it is possible to make judgements about the function of similar filaments without reference to the organism or the context in which it is operating.

For the normativist functions are ascribed to actin and myosin filaments because their properties contribute significantly to the goals of the muscle, which in turn contributes to the ability of the organism to engage with its external environment and fulfil 'vital goals', to borrow Nordenfelt's term (1995). The naturalist need only know what is statistically determined typical behaviour in order to judge what the goals are, on the assumption that, because it is there, it aids (or has in the past aided) the survival and/or reproduction of the organism. This leads on to the second difference, which is that, for the naturalist, the focus is on the internal processes and mechanisms of the organism; whereas for the normativist, it is on the way in which the organism engages with its external

environment. This second difference may be illusory – descriptions of and a focus on internal processes may be shorthand for ‘internal mechanisms that meet external goals.’ For the moment we must carry forward for further analysis the issue of how explicit the goal must be for understanding the function of an item.

A crucial difference between naturalists and normativists rests on the source of ‘goal’ – for the naturalist it is derived from the ability of the organism to survive and reproduce, while for the normativist it is linked to particular ways of engaging with the external environment.

Boorse sums up the differences nicely when he quotes from one of his earlier papers,

On this normativist view, health and disease belong to the welfare—harm family of ethical concepts. The normativist writer’s job is to distinguish medical from nonmedical evils ... Other writers ... seem to begin instead with an intuition that places health and disease in the life—death family of biological concepts. (Boorse, 1997, p. 10)

The relationship between function and dysfunction far from being simply a matter of one failing to meet the standard of the other, also depends on whether function can be defined non-evaluatively as naturalists claim. It is clear that naturalistic accounts are closely related to biological accounts of function. Normative accounts are much less clear about their relationship with biological function.

A problem for the naïve view of dysfunction, (naïve in the sense that it is assumed to be the opposite of function) is that there are a number of variations on ‘not-function’ (used as a generic term for traits that aren’t functions); there are alternative terms to dysfunction that also distinguish it from function. **Non-function** refers to something that has no function at all; the stone lying on the beach has no function, and neither do the adventitious properties of biological items, e.g., the space occupying properties of the heart has no function and neither does the whiteness of bone. There are **unused functions**, such as bee stings that never sting, or uteruses that don’t bear off-spring. These don’t function but neither do they dysfunction. **Function failure** is perhaps a

subcategory of dysfunction where some constitutive part of the function process goes wrong, such as heart failure or the pancreas's failure to produce insulin in diabetes. Finally, **dysfunction** (and its semantic equivalent, **malfunction**) describes a process that has harmful or unpleasant consequences for the organism. Dysfunction can include 'normal function in inappropriate conditions', as was described for the osteopathic concept of somatic dysfunction and might also apply to some diseases of the immune system. Loss of function, then, is not necessarily dysfunction and dysfunction is not necessarily function failure.

This is important for the conventional interpretation of function and disease, for unless there is clear conceptual development from function to dysfunction and disease, the simplicity of the scheme breaks down. 'Not-function' might be function failure, but it could also be non-function or inappropriate function. Knowing which requires additional information.

The equivocation between function and dysfunction is true in non-biological as well as biological items; for example, a door bell that is placed too far from the living room fails to inform someone sitting in there that someone is at the door. The bell clearly fails in its function – its action fails to achieve its purpose – but is not dysfunctioning. This appears to lead to the paradox that the bell is both functioning normally and failing to function. The paradox is explained when it is recognised that different interests are being considered. The 'bell functioning normally' refers to the actual bell on the door together with its switch and electricity supply. The 'bell failing to function' refers to all that's entailed by the 'bell functioning normally' *plus* the living room and its occupants. In other words, the two judgements describe different systems, a global and partial one, in which the partial may be working according to its intended purposes but the global one isn't.

This is an important example for my argument for it appears to parallel differences between pathology as local tissue changes and the way this might (or might not) affect the person in a broader context. It brings us therefore into discussing the issues of disease

and illness and the way that function informs dysfunction (or some form of not-function) and how that relates to disease and illness.

2.2.2. *Function and disease*

Much of the literature on disease is concerned, not surprisingly given the assumption that dysfunction leads to disease, with the same key issues described above, defined variously in terms of naturalistic/normative, value-free/value-laden, descriptive/ evaluative, natural kind/nominalistic, distinctions. Behind the former of each of these is the belief that proper/normal function can be distinguished from abnormal or pathological states. Boorse, as previously cited, states that the goal of his BST is “to analyse the normal-pathological distinction, which I claim is the basic theoretical concept of Western medicine.” (Quoted in Boorse, 1997, p.7) What is sought is a definitive, descriptive standard against which normal human health can be measured in order to provide an answer to the question: ‘does this person have a disease, or is he healthy?’³⁵ Boorse believes it is possible, though as he himself admits, he is in a minority among theoreticians. The issue then is whether disease is a natural kind defined by the proper function of body parts and known through empirical investigation and statistical analysis; or normative, that is, dependent on some arbitrarily, but rationally agreed standard of good health. If it is normative, it must also be evaluative because the act of setting a standard entails evaluative judgements.

On a naturalistic account, it is simply a matter of fact that one state is outside the statistically determined parameters and is therefore termed a disease. The fact that disease has negative connotations that human beings happen to disvalue is contingent on the fact that these states actually are bad for us, that is, they shorten or otherwise reduce

³⁵ This admits Boorse’s assumption that health is no more than the absence of disease. This is not an assumption I wish to make, but for the purposes of the present analysis I will hold to it.

the quality of our lives. The opposite view is that disease is not a natural kind. According to Reznek there is no “deep or theoretically interesting underlying nature which explains the cluster of properties each member of that class shares.” (Reznek, 1995 p.571) Diseases as a whole do not have any unifying underlying explanatory features other than the fact that they are disvalued. Diphtheria, schizophrenia, arthritis and melanoma are all diseases but it is difficult to say what common features they share that represents disease-ness. (Reznek, 1987) D’Amico counters Reznek’s claim by pointing out that in the clinical situation diseases present in classes and are recognised by practitioners who are experts at diagnosing even when the symptom pattern varies from case to case. (D’Amico, 1995) This he argues indicates that there must be underlying factors detectable only by an expert practitioner, suggesting that disease is a natural kind.

Reznek’s point is that individual *diseases* may be of a natural kind but that *disease* as a whole is not. (Reznek, 1995 p.574) He accepts that particular conditions, such as osteoarthritis, for example, represent a natural kind, that is they have a cluster of properties that marks them out from, say, rheumatoid arthritis, but that there is no overarching natural kind called ‘disease’. This observation fits with clinical practice where for a number of diseases, particularly those where the aetiology is unknown or difficult to investigate, diagnosis is based on characteristic features. For example, in the case of a stroke, it is defined clinically in terms of four components:

- ❖ The neurological deficit should be of sudden onset;
- ❖ There should be focal rather than global cerebral dysfunction;
- ❖ The symptoms should last for more than 24 hours or lead to death;
- ❖ The symptoms are presumed to be of non-traumatic vascular origin. (Bamford, 1991 p.890)

Symptoms that match that pattern are presumed to have a common, “deep, theoretically interesting” explanation even though it may be unknown. 80% of first strokes are due to cerebral infarcts but in 40% of cases the pathophysiological mechanism remains

unknown. (*ibid.* p.899) Migraine, myalgic encephalitis (ME), most of the neurological degenerative diseases, cancers and heart disease, are diseases in which the pathophysiological causal mechanisms are largely unknown and where diagnosis relies on identifying a core set of features that is assumed not only to characterise the disease, but to define some real natural state.

The question is whether it is the underlying explanatory microstructure or the 'stereotype'³⁶ that is significant in disease designation and treatment. Disease is the focus for diagnosis in conventional medicine. What is meant by disease and how it is recognised is therefore an important area for analysis; in particular the extent to which function terms define disease. On the conventional medical model disease is explained in terms of dysfunction(s). Therefore the issues identified with reference to dysfunction apply also to disease, though perhaps more covertly. This raises a further issue that will need clarifying; how are we to understand pathology? Many if not most of the advances in modern medicine have come from scientific analysis of pathological states but it would seem that a consequence of the normativist view is that pathology (as dysfunction) is not a natural value-free entity but a disvalued variation of function. Disease, with its pathological core, must somehow be defined in such a way that what is properly subject to scientific analysis can be distinguished from what requires a different kind of judgement. Questions about the properties and causes of pathological states need to be separated from questions about "deep, theoretically interesting" differences between pathology and normal physiology. This is the basis for much of the debate about the concept of disease.

³⁶ Putnam differentiates between things of a natural kind that are explained by their common deep microstructure, and things that just look to be the same, e.g., things that are red or square. These superficial similarities he terms stereotypes. (D'Amico, 1995)

2.2.2.1 *Theories of disease*

The medical model is based on the idea that illness is explained by pathological changes that pervert normal physiological activity. By diagnosing in terms of known diseases, practitioners link patient illness with a specific body of knowledge concerning aetiology, pathology, prognosis and treatment. Diseases in turn are defined in terms of signs and symptoms, pathological lesion and aetiological agent(s). (Greaves, 1996) Pathology is one end of a continuum with physiology at the other and pathophysiology somewhere in between. On the assumption that physiology is the study of function, there is a logical connection between function and disease where function is a key element in defining the tissue states that are pathological which, in turn, (partially) defines a disease.

This takes the naturalistic/normative debate further into the realm of disease concepts and asks whether disease (as the explanation of illness) can, in principle, be defined in value-free terms. In naturalistic accounts it is the functional standard that defines what is abnormal and therefore dysfunction and disease. In normative accounts it is the outcome of the disease that determines which dysfunctional states are identified as deserving of special (medical) attention; in particular, those factors that are involved in the aetiology of the illness. The functional focus in disease on either account is therefore on the dysfunction of the part, but where dysfunction is defined differently.

2.2.2.1.1 *Naturalistic theories*

In the Introduction (p. 42) I described the medical model of disease as entailing a pathological lesion, a causal agent, plus clinical signs and symptoms. (Greaves, 1979a p.32) Knowledge of these is both necessary and sufficient to understand a disease. On the naturalistic account, a pathological lesion represents the sum of abnormal events in the affected tissue(s), i.e., a change in (the biostatistically defined) normal function, that is detrimental to the organism. On the assumption that abnormal function (at least where it leads to detrimental consequences for the organism) is dysfunction, it follows that dysfunction is central to the concept of disease. On the naturalistic account, practitioners' interest in function is focused on identifying dysfunction where dysfunction is any

detrimental deviation from normal function. The attraction and strength of this account lies in its claim to offer a value-free and therefore objective account that can be tested empirically. It is a matter of fact that certain states are bad for us; few would dispute that on most parameters disease is bad for human beings in the same way that high winds are bad for garden fences and bright sunlight is bad for soft-furnishings. If the sun causes the colour of the curtains to fade, we regard it as a matter of fact not of value, even though we might value the brightness of the original colours. The judgement that they have faded does not depend on holding any values about the curtains. The judgement would be the same if the observer preferred the faded colours. So, it is argued, disease is a biological state that just is bad for human beings because it impairs survival, reproductive capability or fitness. Making that judgement does not require that anyone holds values about those states.³⁷

(At least) two criticisms can be made of the naturalistic account of dysfunction; first dysfunctions are not ascribed in the same non-judgemental way that physical effects are, e.g., sunlight on curtains. Biological variations are not all treated equally. Some states are selected as more significant than others. For example, some (abnormal) reddish-brown marks on the skin are regarded as significant because they indicate a melanoma, while others are disregarded as mere moles or skin blemishes. It is not the fact of an abnormality that is assessed, but the (possible) consequences of that particular abnormality. *Prima facie* there is no difference between a melanoma and a mole, and

³⁷ A variation on this theme argues that these matters of fact form the basis of the values we hold about human beings referred to as *objectivist theories*. (See for example, Lennox, 1995; Sade, 1995; Stempsey, 1999) Lennox argues that life is the ultimate value because it differentiates living from non-living things. Life is therefore the basis for survival and reproduction which are the biologists' foci of interest, and preserving and maintaining life is the fundamental goal of medicine. On this understanding, health is a value concept based on empirical fact. If life is the ultimate good, then those empirically determined processes and events that facilitate life must also be good. This offers the possibility of defining an objective value base for function and all that function informs. Critics argue that there may be goals that are more important than continued living. (De Vito, 2000) A mother may protect her young with her life, and someone in extreme pain with no hope of relief may choose death rather than 'poor quality' existence.

many people consult their doctor about a mole because they think it is a melanoma, it is only because we value the consequences of each differently that we define one as a disease and not the other. The fact that everyone agrees that the consequences of melanomas are bad does not change the fact that it involves an evaluation.

A further problem, which is a variation on the 'heap paradox'³⁸, is deciding at what point normal function becomes dysfunction. On the homeostatic principle that normal physiology is adaptive, plus the empirical evidence that long-term or inappropriate adaptation tends to lead to pathophysiology and ultimately, via structural changes in cell and tissue structure, to irreversible pathology, at what point does dysfunction actually materialise? What is the *point* at which a previously benign mole becomes cancerous?

The second criticism concerns a difference between biology and curtains and fences. With the latter the outcome state is compared with the former ideal state. The curtain is faded in comparison with how it was designed. The epistemological issue for naturalistic accounts of function and dysfunction is how to define the referential state. Here the criticisms of Boorse's biostatistical theory have been well rehearsed. (See for example, Agich, 1983; De Vito, 2000; Engelhardt, 1984; Fulford, 1989; Nordenfelt, 1993; van der Steen & Thung, 1988) These focus on the circularity of having to select and examine a normal population in order to define normal. Abnormal and diseased specimens are excluded, but this requires that we already know what normal is, the point we are trying to define. In addition, the fact that one state lies outside a biostatistically defined norm depends merely on an arbitrary decision, i.e., the confidence level set by statistical theory;

³⁸ The heap paradox, which appears in various forms, starts with a grain of sand and asks whether a grain constitutes a heap of sand. The answer evidently is no. If there are two grains, is that a heap? So, one grain at a time can be added and there is no criterion to say at what point a collection of grains becomes a heap. The same argument can be applied to baldness – if a man with a full head of hair loses one does that make him bald, ... etc. In physiology how much change is necessary before normal adaptation become pathophysiology and then pathology? The answer to the heap paradox, is that nouns like 'heap' and 'bald' that describe groups or collections, are definitively vague and therefore do not reduce to specific definitions.

and the issue of how extensive deviations have to be. For example, everyone has abnormal or dead cells – our entire cellular structure is replaced over time – and it is unclear how many abnormal cells are statistically significant. Second, what is normal depends in many cases on environmental circumstances – normal blood pressure at rest is different from normal blood pressure on exertion; the level of red blood corpuscles in the blood is different at altitude from sea level, and so on. The idea of a statistical normal runs counter to homeostatic intuitions, which focus on adaptation and variation. Third, deviation from normal can bestow hyper-fitness as well as hypo-fitness. On Boorse's account it is not possible to differentiate between these without making the prior and evaluative judgement that hyper is good and hypo is bad. Fourth, the theory takes no account of endemic diseases, such as dental caries, which are present in a statistically significant number of people. Although caries is clearly a disease on the subjective basis that it causes pain, pathological change and disrupts normal life, it would not be identified on the BST. Finally, Fulford (1989) argues that value judgements are implicit in naturalistic/descriptive accounts. He analyses Christopher Boorse's claim that health and disease can be described in value-free terms and concludes that, in key places, Boorse, on his own account, is compelled to use evaluative language. In his robust reply to Fulford, Boorse defends his view by claiming that, "Fulford has failed to pay attention to my empirical view of functions based on Sommerhoff goal-directedness. From that view, in every case it is, I think, easy to see how to restate the point in descriptive language." (Boorse, 1997 p.20) But he doesn't actually do it. His case would be strengthened considerably if he demonstrated how he would "restate the point in descriptive language." One is left thinking that he doesn't because he can't. As we will see in the Patient Studies, it is difficult, if not impossible, to describe health matters without recourse to evaluative terms. While these may seem to be value-free, careful analysis reveals values implicit in the assumptions on which the terms are based. This doesn't prevent them being used *as if* they are value-free, and later I will be arguing for a nominalistic conceptualisation of disease based on agreed criteria which are evaluative.

The point I will be making is that disease can provide an agreed standard against which practitioners test their diagnoses, even though it entails key evaluative concepts.

2.2.2.1.2 Normative theories

The claim of the normative theoretician is that, fundamentally, the only thing that distinguishes disease from non-disease is the way in which each is valued in the context of human life. I have already cited Reznek's claim that there is no common factor of disease-ness uniting the variety of conditions that are given the ascription disease, from measles to hypertension, melanoma and schizophrenia, other than that they are disvalued. (Reznek, 1987) I argued that the progression from normal (healthy) physiology through adaptive physiology to pathophysiology and finally to pathology is a continuum without natural divisions. The normative claim is that the decision to define pathology in a particular way is informed implicitly from judgements of what is good or bad for human life.

Normativists argue that there is no finite and potentially knowable taxonomy of diseases which we have to 'discover'. Neither are diseases different in principle from normal physiology. Nothing different happens; there are no special laws that come into effect in disease situations; what is known about physiological activity in normal function applies equally to disease and dysfunction. Lester King quotes Sir Clifford Allbut writing at the end of the 19th Century who stated,

disease is a state of a living organism ... the disease itself contains no elements essentially different from those of health but elements presented in a different and less useful order.
(p.108, quoting Allbutt, 1896; in Lennox, 1995)

Lennox regards as "nonsense" physiology's claim to study normal function while pathology studies abnormal or dys-function; he argues that most of physiology's 'advances' are made by examining highly abnormal conditions "like animals without a liver or without a larger portion of brain or lacking a thyroid; while pathology is intelligible only by reference to the 'normal'." (*ibid.* p.109) He concludes that, "Disease is an arbitrary designation." Both Scadding and Reznek concur with this by arguing that

disease is a nominalistic concept. (Reznek, 1995; Scadding, 1988) This doesn't mean that there can't be agreement. Time is an arbitrary measure but it can be defined accurately and non-controversially down to fractions of a millisecond. For disease it means that certain human states of health as defined by explicit criteria are designated as diseases. States that fall outside those criteria are either not diseases or are different diseases. There are no criteria for disease as a whole, only for specific diseases.

Whether or not diseases are natural kinds or arbitrary designations, it is possible for professionals to agree what the defining criteria are. The critical issue thus becomes terminology rather than clinical ability. It also means that the defining criteria are open to scrutiny and modification. (See for example Rosenberg & Golden, 1992) As Lynn Payer points out, this can lead to cultural differences. (Payer, 1989) Only recently, the criteria for defining hypertension was changed; treatment is now recommended for systolic pressure of 150 mm Hg and above rather than the previous higher level. (Ramsay, Williams & G, 1999) The effect of this is to increase the number of people who have the disease without any material change to their physical state.

A key issue, as identified above, is whether disease is defined by its stereotype, (to use Putnam's term) or its microstructure. Naturalistic theories assume that microstructure is definitive with the stereotype being informative in coming to a diagnosis; normative theories, while accepting that microstructure provides interesting and useful knowledge about diseases, argues that the stereotype, i.e., how the 'state' is perceived by both patient and practitioner, provides the basis of actual clinical decisions. Two further examples will make explicit some of these issues:

I referred to the fact that conditions like stroke that have a number of different causes are defined according to their stereotype. The diagnosis of stroke encompasses a heterogeneous group of disorders united by their clinical manifestation and outcome. Stroke is closely related to a less serious (in terms of outcome) condition, transient ischaemic attack (TIA). Stroke and TIA "are arbitrarily distinguished by the persistence of symptoms for 24 hours. If the symptoms ... resolve within 7 days of onset the term

reversible ischaemic neurological deficit (RIND) might be used, although in North America strokes resolving within 3 weeks are considered as RINDs.” (Bamford, 1991 p.892) So, the same symptoms lasting for less than 24 hours are diagnosed as TIA, if lasting 1-7 days (or 3 weeks in North America), a RIND, and if longer than that, a stroke. The underlying microstructure that explains the effects of all of these is cerebral ischaemia, which may be caused by a number of events, the most common of which is cerebral infarction. This means that the same underlying microstructure explains (at least) three diseases. Differences in the management of these is a reflection, not of differences in microstructure or cause, but stereotype.

Bamford notes that between 30% and 50% of “clinically definite” strokes show no abnormality on CT scans. He goes on to report that “with the increased use of CT for many neurological condition, patients with asymptomatic areas of ischaemia are encountered.” (p.892) In other words, microstructure is disregarded in the diagnostic process in many cases. If CT confirms the clinical diagnosis so much the better, if not, the clinical evidence *contra* D’Amico, “trumps” the scientific.

On the normative account, changes to the ‘normal’ function of a part is a necessary but not sufficient basis for ascribing disease to it. Other factors are also necessary, which are conditional on special sets of interests. Disease can be defined according to the special interests of clinicians, as the study of stroke classification demonstrated. Because different stages of a ‘condition’ respond best to different kinds of management, the stages are distinguished as different diseases. In other situations, the interests of the patient are paramount. De Vito (2000, p.539) describes the fact that the presence of *helicobacter pylori* in the gut is a cause for alarm because it causes gastric ulcers, while that of *escherichia coli* is largely benign and can safely be ignored. Other than the outcome for people with these infections, there is nothing that makes infestation by one a disease and the other not.

In addition to naturalistic and normative theories of disease, naturopathy (from which osteopathy emerged) claims that much of what is described and negatively valued as

disease is an organism's (appropriate and efficient) evolutionary response to environmental challenges.³⁹

2.2.2.2 *Summarising the rôle of function in disease concepts*

It is now clear that function concepts play a major rôle in informing dysfunction and disease. I've suggested that much rests on the ability of naturalists to provide a secure, value-free account of function. Whether or not this can be achieved, on naturalist and normativist accounts, disease is explained by dysfunction which both assume to be defined by function. A full account of this must wait until later, but I have already suggested that the relationship between function and dysfunction, especially on the normativist account, is not straight-forward. There are various kinds of dysfunctions to explain disease, not all of which are failed functions. It is possible to have dysfunction (and disease) when a part is functioning perfectly well, as in allergic and hypersensitivity reactions. A pathology such as inflammation is explained by body mechanisms functioning normally.

In summary, then, disease is a relatively straight-forward matter – it is what physicians define it to be – what is less clear is what informs disease, what is meant by dysfunction, this is much more problematic. Once again we are up against defining *y* though this time it is its negative form that is of interest, what kinds of behaviours count as *dysfunction*? We need to remember that it's dysfunction that is of primary interest to practitioners. Accounts of function, dysfunction and disease are only useful to practitioners, as opposed to being of academic interest to theoreticians, if they inform what to do to heal the patient or manage a problem effectively. The naturalist's account with its relative certainty and clear criteria will always be preferable to one that requires lots of judgements with

³⁹ The broad thrust of naturopathic arguments has received philosophical support from those arguing for an examination of disease in the context of evolutionary theory. So called
cont ...

weighing up of possibilities. At least that's the theory, it remains to be seen whether that is how practitioners actually work, and we still have to examine the evidence for defining biological function before accepting the naturalist case.

In the meantime, the foregoing analysis suggests that, on the naturalist account, it is possible to conflate some of the concepts of function I distinguished earlier. F_{dis} appears to be derived from F_{nat} (which is assumed, at least by Boorse, to be the same as F_{biol} , on the grounds that, in biology, items are assumed to have natural functions determined by natural selection). On a naturalist analysis, F_{dis} is logically dependent on F_{nat} (and F_{biol}).

2.2.3. *Function and illness*

The work of function concepts in the concept of illness is less clear than it is in disease. Apart from the work that has been done on phenomenology, the concept of illness has attracted less philosophical attention than has that of disease.⁴⁰ This may be due to an assumption that illness is disease plus an array of variable factors brought by individual patients and circumstance, and therefore doesn't demonstrate a clear area for analysis. It may also be due to the fact that illness is generally assumed to be heavily value-laden and that the interesting work comes from stripping away the superfluous layers in order to reveal the objective hard core of disease which is assumed to be the real work of (scientific) medicine.

Behind much of modern medicine lies a rhetorical question that might be formulated as, "why does scientific medicine still need a concept of illness, when illness is explained in

'Darwinian Medicine', argues that certain disease symptoms, such as pyrexia and cough, are adaptations that aid survival. (Gammelgaard, 2000; Ness & Williams, 1995)

⁴⁰ This is not to be dismissive of phenomenology which offers an informative and helpful way of thinking about illness. It explains the experience of illness much more comprehensively than the medical model. But it suffers because it doesn't offer an easy solution or path for the (busy) practitioner. The medical model with its seductive offer of identifying and fixing damaged parts will always win even if it doesn't offer such a complete account or has obvious flaws.

terms of disease?" Modern medicine is successful, it is claimed, because it is able to explain illness in terms of disease, which in turn is based on the science of biology. However, as I have already indicated, the concept of disease itself is far from settled. My main concern, though, is to explore the extent to which the concept of function is implicit in concepts of illness and whether it does the same philosophical work as it does in the concept of disease.⁴¹

This leads me to explore the two main theories of illness; first as an evaluative element in the meaning of dysfunction, and second as loss of agency. The main difference between them is not so much the constituent elements, which are broadly the same for both accounts, but the logical relationship between the broader general concept of illness and the narrower one of disease.

2.2.3.1 Theories of illness

Despite the general lack of literature on the concept of illness, two distinct concepts can be identified; one based on the medical model, and the other a "reverse view" (Fulford, 1989)). The former assumes that $F_{glob} = F_{phys1-n}$ and that illness is explained by one or more functions failing and causing global function failure. The latter begins by asking what it is that makes some experiences illness or more specifically, how patients make the judgement that they are ill. This, I will argue, is based on a personal perception of agency.

2.2.3.1.1 Illness and the medical model

The medical model assumes that disease explains and is therefore foundational to illness both aetiologically and logically. On this account the concept of function works in illness in the same way that it does in disease: dysfunction is defined by function (on the assumption that it is possible to know what the proper functions of items are); diseases

⁴¹ For an exploration of the issues entailed in explaining illness including the classification of diseases, giving social meaning and the implications for clinical practice, see Aronowitz, 1998; Svenaeus, 1999

are caused by one or more dysfunctions and results in specific clinical signs and pathological lesions; finally, illness is the personal experience of these changes and may include suffering and psychological responses to the disease. (Nordenfelt, 1995a)

On this account, the primary rôle of function is to inform dysfunction and disease and explain why someone is ill. But there is a secondary rôle which is to explain some of the additional effects of illness. These can be broken down into two areas; the biological effects of just being ill – general responses of the body to stressors. Hans Selye, for example began his investigation into stress responses by recognising that patients in hospital not only had the symptoms associated with a specific disease, but shared a set of common symptoms that he termed a General Adaptive Syndrome (GAS). (Selye, 1976 pp.15-27) These he described as general symptoms of being ill. More recent research suggests that his original concept, that the body's GAS was the same no matter whether the stressor was an infection, hunger or fear, was too simplistic, nevertheless there are general reactions that contribute to a person's experience of illness over and above the symptoms of a disease.

The second experience of illness is described by van den Berg in his essay on *The Meaning of Being Ill*. He describes waking up in the morning, "not feeling too well." He gets up intending to carry on as normal but various symptoms prompt him to get back into bed. He refuses his wife's invitation to have breakfast; he goes on,

I am *really* ill. I give up my coffee and toast, as I give up everything the day was to bring, all the plans and the duties. And to prove that I am abandoning these completely I turn to the wall, nestle myself in my bed, which guarantees a comparative well-being by its warm invitation to passivity, and close my eyes. (van den Berg, 1984)

This is a clear demonstration of incapacity, he feels incapable of doing his usual activities which he identifies with being ill. He is unable or reluctant to engage in normal life activities – he loses his appetite, interest in family matters, and all the usual things that mark out human life. This can range from the physical inability to do something because of weakness or pain for example, to loss of energy and motivation.

In both these cases, the experience of the patient is not simply due to a particular disease, but to a general loss of ability. Today stress, for example, is recognised as an illness and deserving of medical care in its own right, though it is not a disease and is not caused by a specific dysfunction. This is a problem for the medical model for it means that not all illnesses *are* explained by disease. It is argued that in these cases there is a question mark over whether they really are medical problems. In any case, because these secondary effects normally disappear once the disease has gone, for all practical purposes they can be ignored and the practitioner can focus on the disease.

2.2.3.1.2 The “reverse view”

The idea that illness is logically dependent on disease has been challenged by a number of authors, notably Fulford (1989), who argues for a “reverse view”; that illness determines which physiological states are categorised as disease on the basis of (disvalued) pain and disability. Because illness is evaluative, those states identified from a range of states because they explain it, must also be evaluative. Therefore, rather than disease logically defining illness, it is illness that defines which physiological states are dysfunctional states, and diseases. A person judges that they are ill, as distinct from having a disease, when they can’t do the things they ordinarily just do.⁴² Disease is logically related to a particular kind of dysfunction, but illness is logically related to a particular kind of “action failure” which in turn is derived from a failure of “ordinary doing”.

In Fulford’s account, the (primary) symptoms associated with a specific disease and those (secondary) symptoms associated with general stress and loss of ability, are reversed. It is the incapacity or “action failure” that is the determining factor in the primary experience

⁴² Using J. L. Austin’s concept of “ordinary doing” to describe those activities that we ordinarily expect just to do, like getting up out of a chair, walking to the front door or picking up a pencil. What focuses our attention on activities of this kind is not our ability to do them, but our disability when we can’t and when there are no external reasons for our disability, such as being restrained in a chair or wearing mittens for example. (Austin, 1979) This is further expounded in Chapter 3.

of illness. Thus when someone is ill, that is, incapable of doing what they expect to do (or do with customary comfort and ease), they are unable to achieve specific actions in the usual expected way, such as getting out of a chair easily. Achieving purposive actions entails functions in the sense that certain functional activities enable the purpose to be achieved. It requires the person to be capable of doing certain things. Here, Fulford distinguishes the actions of the *person* as “ordinary doing” from the functioning of, say, the person’s arm, which he describes as “functional doing”. This, he argues, clarifies the equivocation between illness and dysfunction in everyday use (*ibid.* p.126). On this account illness provides a logical link between the global experiences of the person who feels incapable because they can’t do the “ordinary” things they just expect to do, like getting up in the morning and eating breakfast, and dysfunctioning body parts, like arms and legs (and normally defined by disease) that are failing to carry out the mechanics of those doings.

2.2.3.1.2.1. Criticisms of Fulford's account

However, although Fulford’s account is clear, it doesn’t completely answer the equivocation between function and dysfunction. I noted earlier in 2.2.1 on page 59, that the relationship between function and dysfunction is not clear, that there are a number of different ways of construing dysfunction in relation to function. The significant factor, as in the case of the door bell that can’t be heard from the living room, is the context in which the activities take place. This is particularly true when conditions such as stress are considered; the same stress reactions, such as stimulation of the sympathetic nervous system and adrenal cortex, that cause illness are no different from those that are necessary for ordinary living. Without glucocorticoids we would be unable to react to environmental challenges such as cold, hunger or crossing a busy road. What makes the same reaction an illness in one case and normal physiology in another is the context in which it takes place. It is theoretically possible for all the component parts, examined separately, to be functioning normally, i.e., operating within (biostatistically) normal limits, but for there to be a global failure of function. In non-biological items this might be described as a design fault. In biological systems it is more complex.

There appear to be similarities between my example of the door bell and Fulford's example of not being able to raise an arm (given that this can't be accounted for by external restraint and so on). Fulford's argument is that the person who finds they can't lift their arm, an action they ordinarily just expect to be able to do, would seek medical help to explain their incapacity (action failure). This, he argues, can be examined at the two levels described above: the dysfunction of the arm, which is derived from "functional doing", and the illness of the person, which is derived from "ordinary doing". Given that arms don't function in isolation, i.e., apart from the person whose arm it is, in the same way that door bells only function in the context of a house and the people who need to be informed that someone is at the door, there appears to be an equivalence between door bells and arms, and houses and people. If so, then it is logically possible for the person to be ill, but for there to be no actual site of dysfunction. The person might be "stressed" or "paralysed with fear", for example, conditions that would not be explainable in terms of dysfunction of any constituent part, but would nevertheless represent action failure.

The idea that there could be an illness without a disease, although fully consistent with Fulford's "reverse view" (Fulford, 1989, Chapter 2), is problematic for a medical profession that bases so much on the belief that disease explains illness. The history of myalgic encephalitis and issues relating to industrial "injuries" are illustrative on this point. (Aronowitz, 1997; Markowitz & Rosner, 1997) There is still much antipathy towards "stress" as a diagnosis.

The distinction Fulford draws between the person and their arm requires further clarification. I accept Fulford's point that people are not defined by their functions in the way that hearts and livers are defined (in part) by their functions. But on that basis, neither do arms and legs have functions in the way that hearts and livers have functions. The function of the heart is to pump blood, but what is *the* function of the arm? Arms, like people, can function in a variety of different contexts; to carry a bag, paint a wall, etc. Fulford agrees that people do function in the sense that they enter into functional relationships. So someone may function as a mother, footballer or gardener or perhaps all

three. A person's general capability plus the specific capacity of body parts to do these kinds of things, and others, unites, at least superficially, Nordenfelt's holistic welfare theory of vital goals with Fulford's illness as action failure. This line of thinking resonates with Korr's thesis, outlined in the Introduction, that human life is valued for the general ability to act rather than the (necessary but secondary) activities of internal organs and tissues. But the point that none of these authors sufficiently emphasise, and that is a central claim of this thesis, is that the context-dependence of function statements goes all the way down. It is not a feature solely of the global functioning (the "actions") of people, but of the functioning of body parts, and, even, of the physiological functions (F_{phys}) and other biological processes (F_{biol}), on which these higher functions depend causally.

Finally, Fulford distinguishes between the actions of people and the function of parts such as arms (accepting for the moment that this will require further clarification) and he correctly notes that "ordinary doing" defines a person's perception that they are well or ill. But this also depends on the context in which actions take place, the environment in which "doings" happen. Although context is implicit in the sense that all activity has to occur somewhere, the precise rôle that context plays is unclear. It might be that clarification here will also help to clarify what is meant by the function of things like arms and legs. For example, normal and "ordinary" actions of my hand are gripping by making a fist, and spreading my fingers in order to play the piano, say. However if, when I want to play the piano, my hand makes a fist instead of spreading to cover the keys, I would, rightly, consider it to be a failure of some kind even though both are "ordinary" actions. This is not the same kind of function failure as the inability to raise my arm. After all, if I want to hold something tight in my hand, making a fist is perfectly normal. "Action failure" on its own is insufficient to determine whether or not *the failure of any particular action* constitutes an illness. By not making context explicit, Fulford is open to the accusation that he is attempting to define 'normal' and 'failed' actions within the context of a standardised human being.

My disagreement with Fulford is not with the broad thrust of his argument, but with his use of the term “action failure” to define illness. My point is that knowing whether any particular “action” has failed entails knowing the context in which there was an intention to act. By defining illness in terms of “loss of agency” rather than “action failure”, the context in which an action takes place and the mental intentions behind it are made explicit. Fulford rightly emphasises the sense of “ordinary doing” that underpins our “ordinary” actions. Walking is a good example of “ordinary doing”, but even here, without explicit acknowledgement both of the intention of the person and the context in which walking occurs, it is not possible to assess failure. If I want to get from my house to the shop I just walk without thinking about how I walk. Walking, as “ordinary doing”, is one element (though conceptually an important element) in “going to the shop”. Entailed by the action of “going to the shop” is the “ordinary doing” of walking, my intention in and the context of going to the shop. If my nearest shop is 50 miles away, then my ‘failure’ to walk there, while it might represent “action failure”, is unlikely to be construed as illness. (Though see footnote 76) Without explicit reference to context and the intention of the agent, sleep-walking would be regarded as normal. However, on my account, sleep-walking is loss of agency because the person is acting (“ordinary doing” acting) in an inappropriate context and without the (conscious) intention to act.

If illness necessarily entails value judgements, a core claim of Fulford’s account, then all the elements that contribute to those value-judgements need to be made explicit including the context in which actions take place. My point is that if Fulford’s idea is pushed a little further and the patient considered to be an agent operating in a specific context, then failure to do those things that are taken for granted *in that context* (which is very close to and probably entails the idea of “ordinary doing”) more clearly defines illness. Illness here is not just “action failure” in an unspecified context, but loss of agency in the specific context of the environment in which the patient is actually acting and where they normally take it for granted that they can do these kinds of activities as and when they would ordinarily do them.

2.2.4. *A theoretical framework for moving between illness and disease*

I have started to describe how function concepts inform the foundational concepts of dysfunction, disease and illness but not yet in a very clear way. A number of issues remain for further analysis; a) defining what kind of *dysfunction* is being referred to as there is no clear conceptual opposite to function; b) defining disease in value-free terms, or, if values are innate features of disease ascriptions, determining the epistemological basis for (evaluative) diagnosis; c) determining what the rôle of context might be in defining function and dysfunction in the concept of illness.

Crucial to the concept of illness is the notion of people being unable to act in ways they take for granted. Not only does this make the focus of the practitioner explicit – what is important is the ability of the person to do the things they ordinarily expect to do and not simply the presence of pathology-indicators – it also makes explicit the conceptual dependence of disease on illness rather than the other way round as the medical model assumes. It is the inability to function in a global sense that determines whether particular body states are regarded as diseases, rather than changed local function determining whether or not someone has a disease.

An implicit claim of the medical model is that illness is explained by disease. On this account, illness is explained *primarily* in terms of disease; other factors associated with illness, such as psychosocial and environmental, are secondary because they aren't causally responsible for the pathological lesion. Instead they are predisposing factors because they make it more likely that pathological disease states will develop. This relies implicitly on the fact of function being a value-free concept.

My analysis may inadvertently have strengthened medicine's claim to separate illness from disease. If, as I seem to be indicating, disease and illness are informed by different concepts of function, disease by the proper function of body parts and illness by the function of the person, then disease, with its scientific biological roots, is both useful to practitioners and easier to investigate by researchers. It might seem that medicine is

justified to ignore illness and focus on disease. The problem is that if illness and disease have different function concepts driving them, disease cannot logically explain illness – at least not without finding another factor that is common to both concepts. On this analysis, illness and disease are different in kind; the terms are not interchangeable and the diagnosis of illness is different from the diagnosis of disease. Illness tells a story about a person not being able to act effectively in their world, and disease tells a story about the pathophysiological state of their body parts.

Clearly practitioners do explain patients' illness stories biologically and the fact that patients continue to consult them suggests that it is largely successful. The question is how they achieve it, how the two notions of function that separately inform disease and illness are brought together in a coherent way. This is addressed first by looking at the ways in which the practitioners in the Case Studies used function, and then in Part 3, from in-depth philosophical analysis of the key issues.

2.3. Summary of Part 1

Chapters 1 & 2 have established the agenda for the thesis, which is to examine and begin to clarify the ways in which function ascriptions inform and are used in osteopathic and conventional medical practice. This embodies a number of issues some relating to the professional identities of osteopathy and conventional medicine and others to the logical work of function statements and links between biological function ascriptions and function concepts in practice.

What has begun to emerge, but requiring further analysis, is the suggestion that, in practice at least, two or more concepts of function are at work, one focussing on the behaviour of local parts (F_{phys}) and the other on the global activities of the person (F_{glob}). I have begun to enquire whether F_{glob} is any more than the aggregation or summation of F_{phys} and the answer to that is seen to rest, at least in part, on the ability of F_{biol} (and hence F_{phys}) to be defined scientifically.

Part 2

Function Concepts in Practice

Chapter 3. Linguistic Analysis: “a way of getting started”

In this Chapter I use two Case Studies to begin to identify the way practitioners use function concepts in practice. Linguistic analysis, in particular Austin’s views on ‘ordinary language’, is used as “a way of getting started” (Warnock, précising Austin) on the task. It concludes that all the practitioners use two significantly different concepts of function, one which assumes that body parts and behaviours have “proper” physiological functions (referred to as F_{phys} a subcategory of biological function, F_{biol}), and the other that takes account of a person’s global ability to function (expressed through action/agency) in their physical and social environment (referred to as F_{glob}).

3.1. Background to the Case Studies

Chapter 1 identified *prima facie* differences between osteopathy and conventional medicine based around their commitment to the medical model. These differences relate historically to the context of their development and, in particular, to conventional medicine’s adoption of scientific methodology as a means of validating its practice claims. Osteopathy, on the other hand, while incorporating significant aspects of the medical model into its theory, has maintained a resistance towards categorising patient illnesses in terms of specific diseases, as is inferred by the medical model, preferring instead to focus on the patient as a unique individual. Consequently, in very general terms, osteopaths tend to emphasise the complex interactions of different parts of the body, and conventional practitioners focus on finding and correcting specific physiological abnormalities. This broad and sweeping generalisation must now be examined in more detail not just to test its truth, but to analyse what each profession is claiming by emphasising different elements. Rather than being different in principle, it might be that both professions are simply emphasising different aspects of the same thing – the blind men feeling different parts of the elephant and disagreeing about what an elephant is – in

which case the next task is to contribute to the development of the picture of the whole elephant.

Chapter 2 highlighted a central claim of the medical model, that illness is explained by disease, which in turn is explained in terms of dysfunction, which (it is assumed), is failed function. I noted that for this “naturalisation cascade” (Fulford, 2000) to work it must rest on something solid and that function must be definable in scientific, i.e., objective, value-free, ways. I will address the question of whether function can be defined in such a way in Chapter 5, but, it’s important that my broader enquiry – what the concept of function means for practice – doesn’t rely only on biology’s failure to provide a convincing non-evaluative account of function. The issue, even if function can be defined scientifically, is what rôle do the humanities play in practice; are they fundamental or mere accessories to the real (scientific) work? A scientific concept of function would strengthen the case for considering disease as the logical foundation of illness and the proper focus of scientific enquiry, but what would it mean for practitioners? If the average osteopath or GP was able confidently to base their diagnosis on a complete scientific understanding of the physiological working of the body (Deep Space Nine medicine), would there still be a place for considering patient function in global terms? This is the subject of this Chapter – how function is actually used in practice.

By holding to certain parts of the medical model, principally that illness can be explained biologically, while disclaiming others, such as the ability to categorise all illness in a common nosography, osteopathy appears to demonstrate a lack of theoretical congruity. This might explain the distinctly osteopathic gestalt, described by Dowdney and Adams (see 1.4.4), where novice practitioners jump between medical and osteopathic interpretations of symptoms.

In osteopathy, evaluation and enhancement of function are considered to be defining characteristics of practice; the aim of diagnosis is to identify dysfunction and treatment aims to modify/correct dysfunction by applying manual techniques to body structures. This is assumed to be implicit in the oft quoted principle, ‘structure governs function’.

However, as I pointed out in Chapter 1, it is not clear what osteopaths mean when they talk about these things.

Osteopathic educational institutions, in common with medical schools, assume that function is known through physiology, with standard medical texts providing knowledge of normal and abnormal function. But it seems that osteopaths hold a more subtle meaning of function which refers to how effectively a part is performing in relation to other local structures and the patient as a whole. In addition, judgements about good and bad function are based on an assessment of local tissues using palpation and observation. This is assumed to be relative with respect to individual patients. Osteopaths make judgements about the function of tissues by comparing their experiential knowledge of what 'good' tissue feels like with what they find in a particular patient. The judgements refer to what they think is appropriate for a particular patient bearing in mind age, sex, morphology, occupation, domestic circumstances, psychosocial factors and so on. A consequence of this kind of analysis is that the same tissue state, i.e., tissues with the same functional capacity, may be interpreted differently in two different patients (and by two different osteopaths). This leads to the claim that osteopaths focus on the individual patient rather than disease. Not only is each patient considered to be a unique individual with their own experiences and life history, but their tissue state must be interpreted individually as well.

The claim to focus on individuals rather than disorders may not be unique to osteopathy, though the significant question is, what does it mean for *practice*? Evidence from unpublished studies carried out as part of the undergraduate and postgraduate degree programmes at the BSO suggest that the differences between them and GPs say, may not be as significant as many osteopaths believe. More pertinently for this study, though, is the question, do osteopaths and conventional practitioners use the same conceptual models for understanding patients' illnesses? Unfortunately there has been little or no published work comparing the ways in which conventional practitioners and osteopaths (or, for that matter, any complementary or alternative practitioners) understand patients' problems. There are many outcome studies comparing the effects of treatment, and

psychological studies examining clinical decision-making, but little interest has focused on conceptual modelling in manual therapy.⁴³

It is important that my analysis is rooted in clinical practice. In the absence of suitable published material most of this chapter analyses two studies in both of which I was directly involved. I am aware of the possible criticisms of lack of objectivity here; analysing one's own work is not normally considered good science, though this is not a scientific study in the sense that psychologists or sociologists, for example, would require. Rather it is an attempt to identify concepts that practitioners use to describe the health problems of their patients. In both cases my contribution to the studies were written blind, that is, I did not know what the other contributors had written before I wrote mine and I did not modify any of my text in the light of what others had written. In the case of *The Practitioner* article, I did not have the opportunity to make any changes.

⁴³ This is also true for Conventional and Alternative Medicine (CAM) generally. There are many published works that claim to explain what CAM practitioners believe and the field abounds with assumptions. For example, following a series of Colloquia initiated by Prince Charles on CAM to which conventional and complementary practitioners were invited, the chairman, Sir James Watt, edited a collection of essays on various aspects of conventional and complementary practice, which was published by the Royal Society of Medicine. In one paper, George Lewith, a much respected doctor who has promoted CAM, tried to identify what distinguishes the two approaches: "One of the main ideas that underpin all complementary therapies is that of biological energy, which in the case of traditional Chinese medicine is termed *chi*. The homoeopath, osteopath, naturopath and acupuncturist all view the manipulation of indefinable vital force as the essential factor in successful therapy. ... Conventional medicine does not have such concepts and therefore finds difficulty in defining health." (LeWITH, 1988 p.20) Quite apart from the interesting but controversial idea that health is defined, or can only be defined, in terms of vitalism, it simply is not true that osteopaths, for example, believe in an "indefinable vital force as the essential factor in successful therapy." While some individual osteopaths hold that view, as do some doctors, it does not feature as a key element in the teaching in any of the main osteopathic educational institutions. Mark Woodhouse, in his contribution to Humber and Almeder's book on the concept of disease, elucidates the concept of disease (and by implication, the concept of health) in the paradigm of holistic medicine. This paradigm also carries the label of "alternative" or sometimes "complementary" medicine.' (Woodhouse, 1997 p.327) Some of the views he presents may be recognised by a selection of CAM practitioners, but are by no means universally held. In general I agree with David Greaves who argues that the "only unifying feature would appear to be the negative attribute that alternative medicine is not orthodox medicine.", (Greaves, 1996 p.102) and highlights the lack of proper investigation and analysis in this area.

These accounts do not claim to be representative (in an empirical sense) either of osteopathy or conventional medicine. But that is not their purpose, which is to begin to map the conceptual landscape of practice. Having sketched some of the features, as I see them, I use philosophical analysis to explain their significance for the practice and theory both of osteopathy and conventional medicine. It will then be for others to test this by devising empirical tests and analyses of practice.

I do not claim, therefore, to represent the views of all osteopaths. As I made clear in the introduction, osteopaths, perhaps more than conventional practitioners, are a disparate group. In effect, the following pages are an in-depth reflection on what I, as a practitioner, claim to be doing. The original papers, on which I comment, were produced in the context of the aims of each study and were honest attempts to describe something that most practitioners just do and rarely spend time analysing. I am aware that some osteopaths might produce quite different reports in response to the same patients. My claim to be an appropriate person to (in a weak sense) represent osteopathy here rests on more than twenty years teaching on and developing undergraduate and postgraduate educational programmes and over twenty five years in practice. This has brought me into contact with a wide range of views and opinions and I believe that the ways in which I think about health problems and treat patients is representative of a significant core of osteopaths. It is for my colleagues to judge whether I have accurately represented contemporary osteopathy, but if my efforts prompt informed discussion and publication, I shall be content.

In the final analysis my thesis does not rest on whether or not the interpretation of these patients is a correct osteopathic account, but on the way in which fundamental practices and beliefs are conceptualised and on the logical relationship between the terms used to describe those concepts. Part of my claim is that there is no clearly articulated account of what 'osteopathic' consists in, though, to a lesser extent, much the same claim could be made about conventional medicine in the sense that, though conventional practitioners could describe what good medical practice is in terms of their own speciality, few could

define medicine. I do not believe there is a Platonic ideal called osteopathy, any more than one called medicine, of which one day we will have full knowledge. The truth, or perhaps mere 'usefulness', of osteopathy and conventional medicine lies in the way in which these disciplines understand and manage health problems. On this basis, the assumptions and claims of both are subject to critical analysis, which, I would argue, requires a return to the mutual regard of philosophy and medicine for each other's insights. My critical reflection on what I consider to be the basis of how I work, whether or not it correlates with how most osteopaths work, is a legitimate contribution to that analysis.

3.2. Analysis of ordinary language use

Donald Schön, perhaps best known for his promotion of 'reflective practice', famously claimed that the espoused and practised values of professionals often fail to match. (Schön, 1983) What is claimed for a profession and what is done by individual practitioners in practice are often different. Reflecting on actual practice incidents is claimed to be a way of bringing the two together. Many see this failure of correlation as practitioners failing to live up to their profession's standards. But there is another explanation, one proposed by the Oxford philosopher J. L. Austin, which is that the real values of a profession only become explicit when what its practitioners actually do and say is examined. The ways professionals use and apply terms in real situations reveals the concepts that actually drive practice. This is based on the idea that we *use* concepts in more complex and subtle ways that we are able to *explain* or *define* them. We use concepts such as 'time' or 'colour' easily, naturally and meaningfully, where we would find it difficult, if not impossible, to define them. It is very likely that professionals, engaged as they are with complex and underdetermined situations also *use* concepts that they would find difficult to define. The "ordinary language" that is used to describe *actual* situations (as opposed to general theories) is derived from generations of use, and coloured by

allusions and metaphors, the origins of which may be long-forgotten. More technical meaning may be added,⁴⁴ which, in theoretical accounts, can obscure almost completely its ordinary use. Austin's claim was that "ordinary language", "the first word" on the matter, "embodies ... the inherited experience and acumen of many generations of men." (Austin, 1979 p.185)

An osteopath and an orthopaedic surgeon, for example, might discuss prolapsed intervertebral discs (PID) and, using the same terminology, be in total agreement about what it was and how to deal with it. If, however, they both saw a patient with a PID who was suffering pain and distress, although they might agree on the diagnosis, it is highly likely that they would disagree on their explanation of the problem in the wider context of what it means and how the problem should be managed. Written (or verbal) accounts of the case might well emphasise different things and explain significance differently. It is here therefore at the level of actual case explanations and interventions that the values and practice mores of a practitioner become evident.

Austin argued that examining the words practitioners use to describe actual cases reveals more about what is driving their work than text-book explanations. (Austin, 1979) If I am going to discover what osteopaths and conventional medical practitioners mean by function, I will need to examine how they describe and deal with real cases. Austin never claimed a complete method or theory of linguistic analysis. In fact he expressly states that his 'ordinary language' analysis is not the last word, but "the first word", (*ibid.* p.185), or as Geoffrey Warnock in his book about Austin describes it, "a way of getting started". (Warnock, 1989, p. 5) This Chapter then, is "a way of getting started", of beginning to uncover the concepts that drive osteopathic and conventional medical practice, but with a particular eye to how function concepts are used.

⁴⁴ For example, use of the term 'chronic', to describe pain or disability: in ordinary usage it means nagging, in contrast with acute, which means severe. In professional use, it defers to cont ...

Uncovering values and mores involves scrutinising verbal, in this case written, accounts of cases in order to identify concepts implicit in the language used. In explaining signs and symptoms, e.g., of a disease (or whatever), practitioners communicate the “inherited” (Austin) concepts that make those explanations significant. So, for example, subtle changes in tissue texture in the lumbar paraspinal soft-tissues are regarded as more significant, i.e., valued for their explanatory power and as indicators to treatment, for an osteopath than they are for an orthopaedic surgeon. The concepts embodied in both the *act* of palpation and the *meaning* given to it are covert but highly significant.

Although illness embodies a rag-bag of experiences and expectations, which explains why practitioners prefer the conceptual simplicity of disease diagnosis, implicit concepts are more likely to be evident where practitioners interpret real situations rather than (medicalised) text-book descriptions. Conceptually illness is much more interesting than disease. It embodies biological, cultural, social and psychological elements. For ordinary language analysis it is a veritable treasure house. More significantly, it is illness that drives a patient to seek medical care and it is illness that the practitioner’s treatment must address.⁴⁵ Analysing how patients describe and practitioners deal with illness will provide a way of uncovering their conceptual understanding of it.

3.3. The Case Studies

The first study is a paper published in *The Practitioner* (Myers, Tyreman & Gardner, 1995) in which a GP, an osteopath and an orthopaedic surgeon were invited to comment on and give an account of their management of a clinical situation posed by the journal. Although this study did not set out to assess concepts explicitly, they are implicit in that

its etymological root and means something that has existed for a long period of time.

⁴⁵ See, for example, van den Berg’s (1984) simple, but illuminating example, already cited, of waking up feeling different and coming to the conclusion that he “is really ill”. For some reason this chapter was omitted from the 2nd edition of the Open University’s *Health and Disease* reader.

the accounts reflect the focus of interest and approaches to patient care held by the three respondents. The second is a Patient Study which aims to compare the ways in which an osteopath, an orthopaedic surgeon and a physiotherapist assess and describe the same three patients. In this study each of the three practitioners examined and provided a written report on three patients. Each of the patients had attended one of the practitioners for the first time in the preceding few days and agreed to be examined again by the other two. The reports were written up independently, then collated and compared. No editing or other modifications were made.

In both studies I will refer to my reports in the third person. This is an attempt to apply the same analytical force to all the accounts equally.

3.3.1. *Comparison of responses to a Case Vignette (osteopath, general practitioner and orthopaedic surgeon)*

In 1994 I was asked to write a piece for *The Practitioner* in its 'How I treat ...' series. The scenario is a 50 year old foundryman, Bill Marshall, who presents with an episode of low back pain. He has had three previous episodes in the past five years and is worried that a prolonged period off work will increase the likelihood of him being made redundant. His wife is partially disabled and he anticipates financial difficulties if he loses his job. He asks his GP for referral to a specialist and an osteopath to speed his recovery. A GP and an orthopaedic surgeon were also asked to contribute. The published article appears as Appendix B. (Myers et al., 1995)

In the paper, the GP deals with the initial consultation and request from the patient; the consultant and the osteopath describe what they would say and do if the patient was referred on to them. The GP focuses on the way she would deal with Bill's situation, specifically, "management and referral". She doesn't offer any treatment, and her diagnosis is based on her experience of "simple mechanical back strain", which is assumed to be typical of (and similar to) hundreds of others she has seen. She knows there is little she can offer in the form of treatment, but that the prognosis is generally

good. Most of the account is therefore about managing the situation Bill is in and offering advice for the future. Her concern is to support him in his desire to stay at work, which includes referring to an orthopaedic surgeon if he wishes, despite the fact that she doesn't believe that an orthopaedic surgeon will be able to do much for him. If he chooses to see an osteopath she would give him a brief medical report to take with him.

The osteopath displays a more structured approach to the situation; these kinds of problems are the 'bread and butter' of osteopathic practice and, unlike the GP, the osteopath has a range of diagnostic and therapeutic tools (literally) to hand. There is a greater focus on explaining Bill's particular problem in contrast to the management of simple mechanical back strain problems in general. Despite the fact that the osteopath will be performing the treatment, the approach is more towards information gathering and hypothesis generation than prescribing treatment; in fact, there is little attempt to offer a definitive diagnose from the given information.

The orthopaedic surgeon also offers a structured approach, but one that is more narrowly focussed. The context is his personal knowledge of spinal problems, as "a consultant with a major interest in managing spinal disorders," and the published literature in this area. There is much more emphasis on possible treatment, which ranges widely from reassurance to spinal surgery, depending on what the diagnosis turns out to be.

Analysis of the differences will be discussed after describing the second study.

3.3.2. *Comparison of responses to a Patient Study (osteopath, physiotherapist and orthopaedic surgeon)*

In the second study three practitioners, an orthopaedic surgeon, a physiotherapist and an osteopath, examined and provided a written report on three patients. Each of the patients had attended one of the practitioners for the first time in the preceding few days and agreed to be examined again by the other two. The reports were written up independently, then collated and compared. No editing or other modifications were made.

3.3.2.1 Methodology

The three practitioners each selected a patient from their practice who had recently presented with a complaint that was typical of the kinds of problems normally seen by them and who they would expect to benefit from their treatment and management. In each case it was the first visit by the patient to that practitioner and at the conclusion of the case-history taking and examination they were asked if they would be willing to take part in the study. They were each informed that this would involve attending for further examination by the two other practitioners a few days later. The patients signed consent forms after being told what would occur during their visit. It was made clear that no treatment would be given at that time and that they would remain under the care of the practitioner they had first consulted.

Each patient was seen and examined privately on the same day by the two practitioners they had not previously visited. No discussion about any of the patients took place between the practitioners though x-ray reports, where they existed, were made available. Each practitioner then wrote a report on each patient describing his main findings and his understanding of each patient's complaint. It was made clear that it was not the purpose of the study to make any kind of judgement about the correctness of diagnosis, but to examine similarities and differences in the way each practitioner understood the problem.

As a follow up, each patient was contacted by letter thanking her for taking part and inviting comment on the experience and to identify any differences between practitioners. Two of the patients replied and their letters are included in the case reports.

3.3.2.2 Reports

As might be expected, there were differences in the style of report writing. Each report presents the findings and conclusion of each practitioner in the format felt by them to be most appropriate. No format or standard of report was agreed beforehand as it was felt that this would impose a value system on the practitioners.

Although there were differences between them, each practitioner was consistent in the presentation of his findings in that he used the same categories for each patient. This was despite the fact that not only did each patient present with a different kind of problem, but there was also a wide age range and varied clinical histories. This suggests that the headings reflect each practitioner's professional values. The headings are presented in Table 1 on page 101.

There were no fundamental differences of opinion about the ontology of the diagnosis for each patient; there was general agreement that each patient's problem could best be explained biomechanically. Where differences exist they relate to the significance given to particular items of information; in other words, the total picture was described differently by each practitioner but it was clear that the descriptions had a common derivation.

The orthopaedic surgeon (NM) focused on particular items of information from the case history plus a standard set of signs and symptoms elicited from the examination. These were: the Presenting Complaint and History, Past Medical History, Drug History and Social History. The examination looked for general systemic signs such as jaundice, anaemia, cyanosis, clubbing and lymphadenopathy, plus a comment on the patient's weight. Additional items were noted, namely, gait, spinal curves, spinal joint movements, lower limb movement, neurological signs, pulses, and abdominal signs. Absence of clinical signs were recorded in addition to 'positive' findings. Finally, there was a section giving an impression of the problem and suggested treatment.

The physiotherapist (HS) provided the most extensive report. This covered Current and Previous History, General Health, Occupational History, Pain Patterns and Modifying Factors. Examination included comments on Posture, Movements, Palpation to identify areas of tenderness, and Neurodynamics. Finally there was a section on Aetiology, a Treatment Plan, and Prognosis.

The osteopath (ST) provided only a summary of those findings that he felt significant and relevant. These were categorised under Case Presentation Summary, Aggravating and Relieving Factors, plus, he noted any previous medical history judged by him to be significant. Most space was devoted to Opinion which covered examination findings, the aetiological development and diagnosis of the problem, and in providing a Management Plan.

For the purposes of this study the analysis was limited to a comparison between the orthopaedic surgeon and the osteopath on the basis that if there is a polarisation of views related to the medical model, it would seem reasonable to expect these two to represent opposite ends. The physiotherapist's view might be expected to include elements of both as physiotherapists are manual therapy specialists who work primarily within a conventional medical environment. Analysis of all three reports indicate that this is indeed the case, but this will be commented on again later.

The report headings are laid out and expanded with examples, below. The full text of the reports is found in the Appendix.

3.3.2.3 Report Tables

<u>Orthopaedic surgeon</u>	<u>Physiotherapist</u>	<u>Osteopath</u>
Presenting complaint & history	Current history	Case presentation summary
Past medical history	Previous history	Condition aggravated by...
Drug history	General health	Condition relieved by...
Social history	Occupational health	Not significantly affected by...
On examination: <ul style="list-style-type: none">• Gait• Upper limbs• Spine• Lower limbs• Abdomen	Occupational history	Opinion
Impression	Pain patterns & modifying factors: <ul style="list-style-type: none">• Sleep• A.M. day, evening• Sitting, sustained flexion, standing,• walking• Aggravates/eases	Management plan
Treatment	X-ray	
	Expectation	
	Examination: <ul style="list-style-type: none">• Posture• Movements	
	Palpation	
	Neurodynamics	
	Actiology	
	Treatment plan	
	Prognosis	

Table 1. List of headings used by the orthopaedic surgeon, physiotherapist and osteopath to format their reports on the Patient Study. These headings were used consistently by each practitioner despite their being no compulsion to do so. It is argued in the text that this suggests that the headings represent an important conceptual framework for organising the information coming from a patient examination.

Orthopaedic Surgeon's Headings	Examples (not necessarily from the same patient)
Presenting Complaint & History	"Mrs A complained of low back pain of 11-12 years duration. The pain was cited in the lumbar sacral region and started gradually. She initially sought advice from her GP who performed an X-ray which was found to be normal. She was treated symptomatically."
Past Medical History	"1991: RTA, wedge fracture L1"
Drug History	"OCP; paracetamol"
Social History	"Doesn't smoke Occasional alcohol 3 children: no epidural"
On Examination:	"Generally fit. No evidence of jaundice, anaemia, cyanosis, clubbing or lymphadenopathy. Slim."
Gait	"Normal"
Upper Limbs	"Psoriasis of elbows"
Spine	"No obvious scoliosis" "Tender L5/S1 region and Right PSIS Flexion 6cm toe-touch, lateral flexion and extension some pain but full ROM No inappropriate signs."
Lower Limbs	"SLR, R=L 70° limited by tight hamstring Neurology normal Pulses normal Hips normal"
Abdomen	"NAD"
Impression	"This 22 year old lady presents with a 1-2 year history of increasing low back pain with pain referred to her legs with no neurological symptoms. The features of the pain suggest that it is a mechanical type of pain not involving the spinal nerves. Her pain is probably a mixture of the old wedge fracture, muscular and possibly intervertebral disc related. There are no features to suggest a sinister pathology and there does not appear to be any increase in her wedge compression fracture to account for her upper lumbar pain. Her pain may be modified when she stops her present job and this may be all that is necessary."
Treatment	"She would benefit from a programme of spinal mobility and muscle strengthening exercises under the care of a physiotherapist. If the symptoms do not respond to this after three months, further imaging studies may be required."

Table 2 Headings as used by the Orthopaedic Surgeon together with indicative examples drawn from all three patients. The left hand column lists the headings chosen and used by the practitioner and the right hand column gives actual quotations from his report. It indicates the main information that is of interest to him and the kind of explanation provided. A full copy of the report can be found in the Appendix.

Physiotherapist's Headings	Examples (not necessarily from the same patient)
Current History	"Complained of constant aching across the base of her back with intermittent aching into the right buttock extending postero-laterally into the right thigh to the mid thigh level. She rated her pain at 4.5 on the Visual Analogue Pain Scale. The backache has been present on and off since the birth of her children now aged 7, 8 & 11, but has become much more constant in recent months with the leg reference appearing around six months ago and gradually developing in severity. It is this latter development that has triggered her determination to do something about it."
Previous History	"She recalls an episode of back pain 15 years ago when she visited an osteopath and a similar episode 10 years ago which settled within 3-4 days with bed rest. She has suffered intermittently since."
General Health	"She reports having had an ovarian cyst removed – the abdominal scar is noted. She enjoys swimming, has ambitions to cycling and has a skiing holiday in prospect which is giving her some concern. She feels that she is less 'fit' than she should be."
Occupational History	"She is a teacher working with those with learning disabilities and is community based which involves her in a lot of driving."
Pain Patterns and Modifying Factors: Sleep	"Whilst she prefers to sleep on her right side she is unable to do so comfortably so finishes up on her left side. Currently she is woken up by her backache after 2-3 hours."
A.M., Day, Evening	"There is no alteration in the pattern or intensity of her discomfort in relation to time."
Sitting, sustained flexion, standing, walking	"Her tolerance to sitting for long periods is reduced with some difficulties transferring to being upright again. Similarly, she can react to periods of sustained forward bending. Her standing is limited to 1 hour tolerance and walking to 2 hours."
Aggravates/Eases	"Riding a bicycle, lifting and carrying will aggravate her pain. It can be eased by stretches into extension. She has no problems with coughing and sneezing. She uses paracetamol, ibuprofen and warmth for pain control."
X-ray	" <i>Lumbar Spine:</i> "Spondylotic changes at several levels, fairly minimal - some disc space narrowing - particularly posteriorly at L3/4, L4/5 - more marked at L5/S1." - August 1997"
Expectation	"She has no overwhelming problem but wants to ease the pains in her back. Whilst she feels that she will never be rid of all her pains she would like to have more 'control' over it."
Examination: Posture	"There is no scoliosis, lateral deviation or pelvic asymmetry but she does show a slight swayback with increased thoracic kyphosis and compensatory, cervical lordosis."
Movements	"A restricted range of lumbar spinal movements is evident with extension at 50% of expected range, flexion at 35cm fingertips to floor and side bending left and right 3 and 4 finger breadths from the knee crease indicating a significant degree of restriction. She demonstrated a mild restriction of her right hip, but the SI joints

	appeared not to contribute to symptoms. She demonstrated a poor quality of stabilising muscle control when asked to tension abdominal (transversus) and deep back muscles (multifidus)."
Palpation	"Palpation revealed tenderness over the L4 and L5 segments on the right side in particular."
Neurodynamics	"S.L.R. was at 80° bilaterally with reflexes, sensory perception and muscle strength normal. Neck flexion plus trunk forward bending produced the target back pain which was increased by adding right knee extension but not left knee extension."
Aetiology	<p>"Mrs A presents with a lumbar dysfunction that appears to have a degenerative base. It might be expected that if a current x-ray were available that it would show a degree of I.V. space reduction.</p> <p>The resulting increase in pressures acting on the facet joints have been accentuated by her posture in association with her weight distribution - her standing intolerance being significant in this regard.</p> <p>The lack of flexibility noted in the lumbar segments and the myofascial thickening over the left paravertebral structures has reduced her ability to absorb the energies of movements and mechanical stresses. Previous 'flares' of her symptoms leaving scar tissue from the micro trauma caused.</p> <p>There is also evidence to suggest some restriction of neural mobility which will undoubtedly contribute to her ongoing symptoms.</p> <p>The associated restrictions in the right S1 joint and ? ilio-tibial band on the right have added to her vulnerability as well as producing local symptoms."</p>
Treatment Plan	<p>"To explain to the patient the probable cause of symptoms, set goals in conjunction with her and explain the treatment plan.</p> <p>Supple the affected lumbar spinal joint segmental restrictions .</p> <p>Release the myofascial tightness in the left paravertebral tissues.</p> <p>Mobilise the neural restriction.</p> <p>Re-educate postural control – dynamic and static.</p> <p>The above would be achieved physiotherapeutically by the use of manual mobilisation/manipulation techniques, myofascial release (trigger point release using manual or acupuncture methods or PNF methods), neurodynamic mobilisation, home exercise plan, advice and encouragement with regard to weight loss and a general increase in activity that would lead to greater fitness e.g. swimming or water based fitness and exercise groups."</p>

Prognosis	<p>"It would be reasonable to expect to be able to restore a painless and functional spinal unit although this in large measure would depend on the patient's determination to accept the obligation that I would place on her to fulfil her role in the treatment. This would require her to be dogged in the performance of her exercise routines and their application in functional and dynamic situation.</p> <p>There is little doubt that she will suffer future episodes of backache, but their frequency, severity and duration will be significantly diminished if she can be diligent in maintaining her back fitness programme."</p>
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Table 2 Headings as used by the Physiotherapist together with indicative examples drawn from all three patients. The left hand column lists the headings chosen and used by the practitioner and the right hand column gives actual quotations from his report. It indicates the main information that is of interest to him and the kind of explanation provided. A full copy of the report can be found in the Appendix.

Osteopath's Headings	Examples (not necessarily from the same patient)
Case Presentation Summary	"22 year old Home Care Assistant (also does some dog grooming). Presented with bilateral LBP and an aching pain down the lateral aspect of her left leg as far as the knee. There were no sensory disturbances. In 1989 (age 14) she had been knocked off her bike by a car in a RTA. She hit the windscreen and incurred a wedge fracture at L1. Since then she has had problems with her back. She had physiotherapy exercises prescribed but they didn't improve the problem. The symptoms have gradually been getting more frequent and more severe, possibly aggravated by "pulling" her back when taking the weight of a patient in her care. She has had some treatment from a bonesetter which helps for about a day afterwards."
Condition Aggravated by ...	"Lying on the left side; bending forward. In bed it can wake patient after 2-3 hours. It is stiff after walking a moderate distance."
Condition Relieved by...	"Moving; using a reclining chair; on first going to bed"
Condition Not Significantly Affected by ...	"Warmth; coughing or sneezing"
Opinion	<p>"1. The patient has severe pes planus which has resulted in eversion of both feet and a genu valgum deformity, plus a tendency to internally rotate both hips. These mechanical changes in the lower extremity have put strain on the lateral postural muscles; in particular the tibialis anterior and peroneus longus. The biomechanical changes in the hips are inhibiting normal flexion and extension in the course of which, additional strain is imposed on the gluteal muscles and through to the lumbo-sacral fascia effectively splinting the lumbo-sacral joint. Lumbar spinal mobility has therefore been focused on the mid and upper lumbar region. This situation will also account for the aching and swelling in the left knee.</p> <p>2. Spondylotic changes in the lumbar spine have resulted in reduced disc space and further restricted lumbar mobility. The poor range of movement in the lumbar spine has meant that local circulation is</p>

	<p>impaired both accelerating the degenerative process and embarrassing muscle function.</p> <p>3. The patient, although quite tall (5' 9") is carrying a considerable weight (15st 3lb). This is putting further strain on the postural spinal muscles causing fatigue and circulatory embarrassment</p> <p>4. A predisposing factor has been the patient's former occupation as a security officer in a shop. This involved long periods of standing and slow walking, both of which exercise the postural muscles of the spine, pelvis and lower extremity which have become hypertonic and contracted as a result. Slow sustained contraction fatigues skeletal muscle quickly. The loss of elasticity impairs local fluid flow and has contributed to the ischaemia."</p>
Management Plan	<p>"My main aim in management would be to improve muscle function through gentle soft-tissue massage. At the moment the chronic fatigued state of the muscles is both responsible for many of the symptoms and also masking the underlying tissue state. Once the muscles are functioning efficiently it should be possible to assess the postural biomechanical changes more accurately and evaluate how the body is trying to compensate and adapt.</p> <p>It was noticeable that the posture and biomechanical relationships altered during the time of the examination. After lying down, the spine was straighter, but in the course of a few minutes reverted to the pattern described above suggesting that muscle fatigue is a significant factor in the problem.</p> <p>Ultimately the ideal would be to improve the mobility and functioning of the thoraco-lumbar area. This should be possible, though the chronic state of the tissues would indicate that this might take some time and would require quite a lot of treatment to bring about the necessary long-term changes."</p>

Table 3 Headings as used by the Osteopath together with indicative examples drawn from all three patients. The left hand column lists the headings chosen and used by the practitioner and the right hand column gives actual quotations from his report. It indicates the main information that is of interest to him and the kind of explanation provided. A full copy of the report can be found in the Appendix.

3.4. Findings from the studies

I propose to analyse the studies by comparing the osteopath with the orthopaedic surgeon and then to compare this with the approaches of the GP and physiotherapist. This is followed with comments on differences between the interests of patients and practitioners generally as reflected in the language of the consultation and finally, I will contrast primary and secondary care practitioners.

The reason for this structure is to attempt to clarify where differences lie. In contrasting the osteopath and orthopaedic surgeons' approaches three possible sources of difference

can be identified: the first is that each comes from a different clinical tradition, one rooted in conventional medicine and the other in CAM. Second, orthopaedics is hospital-based secondary care, while osteopathy is primary care, i.e., the first point of contact for most patients. Third, the studies used two different orthopaedic surgeons one of whom was very experienced, the other relatively inexperienced (senior registrar level), but with the same (experienced) osteopath. Differences found could therefore be due to fundamental differences in the professions of osteopathy and orthopaedics (or their roots), differences between primary and secondary care, or between experienced and inexperienced practitioners specialising in musculo-skeletal problems.

3.4.1. *The osteopath and orthopaedic surgeon*

Similarities and differences between the osteopathic and orthopaedic accounts can be identified. I will describe these under the headings of Report Structure, Identifying and Interpreting Significant Information, and Dealing with External Factors.

What appears to be a clear difference between the orthopaedic surgeon and the osteopath in the Case Vignette is the extent to which they are prepared to commit themselves to a diagnosis and management plan on the basis of the brief information provided. The osteopathic account is guarded, cautious and, although broadly indicating what kind of problem it is thought to be and offering likely explanations and a management plan, falls far short of the more definitive account provided by the orthopaedic surgeon, who, while not committing himself to say exactly what is happening in this case, does offer a limited range of possibilities each of which is clearly defined. However, in the Patient Study where the osteopath has more opportunity to gather information the willingness of each to commit themselves to a diagnosis is similar.

3.4.1.1 *Report structures (See Table 1, p. 101)*

In both studies, particularly the Patient Study, a clear structure is evident. In the (more theoretical) Case Vignette the osteopath sets out his thinking more clearly though all the factors that are mentioned as being of importance can be found in the Patient Study

report. His examination findings are included in the Opinion section rather than listed under specific examination items as the orthopaedic surgeon's are. The surgeon on the other hand has definite headings for gait, upper and lower limb, spine examination and so on, whether or not there were any actual findings. This suggests that he examines each patient in broadly the same way. It may also indicate an earlier stage in the clinical decision-making process.

In the Case Vignette, the osteopath works to four clear stages:

- ❖ Investigating the underlying pathology
- ❖ Assessing postural and other ergonomic factors
- ❖ Considering psychological and other background stress factors
- ❖ Developing short-term and long-term management plans

The orthopaedic surgeon starts with three questions:

- ❖ How can the present attack be terminated quickly?
- ❖ How can future attacks be prevented?
- ❖ What is the long-term prognosis?

These are much more clearly focused on doing something, or determining what can be done, than are the osteopath's, which are more investigative and focused on understanding the problem – with the exception of the last stage, though even this is not explicit. In order to answer his questions, the orthopaedic surgeon depends on "a reasonably accurate working diagnosis." The osteopath, on the other hand, makes no mention of diagnosis as such at this stage. I will return to the issue of diagnosis later. The difference between the two may reflect differences between primary and secondary care practitioners. Orthopaedic surgeons are normally the last call for patients, after consulting their GP and other therapists, and may therefore feel obliged to 'do something'.

To answer his questions the orthopaedic surgeon in the Case Vignette focuses on four diagnostic categories and three treatment choices, namely conservative treatment consisting of exercise and manual therapy, spinal injection or surgery.

The Patient Study reports are much more explicit than is the Case Vignette, probably because they describe real clinical situations. Although broadly similar, there are differences. The osteopath has main headings for aggravating and relieving factors while the orthopaedic surgeon has a list of examination findings. This may suggest a different emphasis on relating the condition to specific activities and on trying to understand the various ways in which the trouble affects and is affected by the patient's life. The orthopaedic surgeon places more emphasis on assessing specific structural and physiological parameters where he records both negative and positive findings.

The other noticeable difference is between the heading of Treatment from the orthopaedic surgeon and Management from the osteopath. This may reflect a different emphasis in their approach to care.

3.4.1.2 *Identifying and interpreting significant information*

There is agreement that a mechanical problem accounts for at least some part of the complaint in both studies. In the Case Vignette, the osteopath thinks it “probable that the case history would indicate that this episode is the latest stage in an ongoing mechanical problem”; while the orthopaedic surgeon believes that, “If he has predominantly midline pain and tenderness, the likely diagnosis is lumbar instability syndrome.” There is therefore broad agreement (assuming the pain and tenderness is predominantly mid-line) about what kind of problem would be discovered if it were possible to investigate the internal mechanism of the low back. While this is agreed, there is clearly a difference of opinion over what this means in the context of the back trouble.

Interestingly, in the Patient Study, neither the osteopath nor the orthopaedic surgeon make their thought processes clear. Both provide well argued conclusions and are clear about what they think the main problems are and how to address them, but the process

by which they move from information to conclusion is opaque. This is perhaps surprising considering the emphasis the orthopaedic surgeon places on acquiring specific data and the pains to which he appears to go, to ensure that everything is assessed. The most likely explanation here is that the process is so much part of each practitioner's thinking that making it explicit is considered unnecessary. For each profession, particular information leads to specific conclusions. Any orthopaedic surgeon would come to the same conclusion given that information. The processing is part of the tacit knowledge base of the practitioner.⁴⁶

The osteopath's decision-making process is even more obscure in that he doesn't identify the information he considers relevant before presenting it in his conclusion. We therefore have to rely on the assumption that, because it is mentioned, the information is considered significant. Like the orthopaedic surgeon though, he explains the rationale behind his conclusion.

There is not enough information from this study to conclude what the clinical decision-making process for each practitioner might be, but that is not my interest here. The fact that particular (and different) information is selected and given special significance, is sufficient to permit analysis based on the kind of information it represents and the way in which it matches particular ways of thinking.

So what information is regarded as significant? It has already been noted that there is more agreement than disagreement. Both are interested in how the person's body is functioning in the context of their illness experience. They are not (at least in these cases) interested in what the patient is wearing, where they went on holiday or what pets they

⁴⁶ Most empirical studies, though, suggest that this is not the case. Even when the same, apparently straight-forward, information is given to different practitioners who are experts in their field they demonstrate a wide range of variation in the way that they interpret and draw conclusions. This suggests that while practitioners in a discipline believe there is a common theoretical basis to their profession, in practice this may not be the case.

might have even though these provide information about the person.⁴⁷ Broadly, the orthopaedic surgeons place most emphasis on the results of specific tests including x-rays and scans. This further supports the idea that they are following a complex algorithmic process where a sign is present or absent, positive or negative, significant or not significant. The logical, step by step progression through this (possibly implicit rather than explicit) formal structure results in the practitioner 'emerging' at recognised set points that mark the diagnosis. For example, in his 'Impression' section, the orthopaedic surgeon in the Patient Study offers a number of possible diagnoses (usually ones with serious consequences) and then gives reasons why all but one are not likely and therefore why he has selected a particular diagnosis. The osteopath, on the other hand, tells a story but does not make it clear whether this represents the only possible account, i.e., whether the clues compelled him to come to only one conclusion, or whether there were alternatives that were rejected.

The osteopath appears to follow a less well defined route in which a range of factors are selected and integrated to produce a story. This story includes some of the medical information used by the orthopaedic surgeon, but, more significantly, attempts to embrace the story told by the patient. The difficulty here is in identifying how the osteopath attaches significance to particular items of information. But, even if we don't know how, it is clear that the information that is selected as significant relates to patient activities. The aggravating and relieving factors describe patient activities that modify the symptoms; so bending, lying on one side, going upstairs and so on, provide the osteopath with clues to enable him to come to a view on what is going wrong. This 'subjective' information appears not to be so high on the orthopaedic surgeon's agenda, though he

⁴⁷ Of course in other clinical situations clothes, holidays and pets might be very important factors; for example in mental illness, suspected malaria and asthma. But even in these examples, significance is attached through a particular way of understanding body function.

does report aggravating and relieving factors, while the results of tests is not a high priority for the osteopath.

The tentative conclusion at this stage is that the orthopaedic surgeon is looking for information to enable him to place the patient into a particular medical category in order, presumably, to facilitate him in selecting the most appropriate course of treatment. The osteopath, on the other hand, appears to be telling a story about the patient in which deduced structural and functional abnormalities are placed in the context of the patient's presenting problem which includes her life history and daily activities. How does this relate to the formal process of producing a diagnosis and prescribing treatment?

3.4.1.2.1 Diagnosis

Do osteopaths and orthopaedic surgeons understand the same thing by and place the same emphasis on diagnosis? It is perhaps surprising that none of the practitioners in the Patient Study have a heading of 'diagnosis', though the orthopaedic surgeon in the Case Vignette and the GP both refer to it. The practitioners in the Patient Study present their conclusions and explain the problem under a range of headings; 'Impression' and 'Treatment' from the orthopaedic surgeon, 'Aetiology', 'Treatment Plan' and 'Prognosis', from the physiotherapist, and 'Opinion' and 'Management plan' from the osteopath. Presumably these reflect what each believes diagnosis to entail. Despite the word not being used explicitly in the patient studies, I will continue to use diagnosis in its literal sense as distinguishing between different possibilities through enquiry. (From *dia* – between, and *gnosis* – to know.)

I noted in the Case Vignette that the orthopaedic surgeon appeared prepared to draw conclusions where the osteopath wanted more information. The surgeon was prepared to give a pathological diagnosis on the basis of whether spinal tenderness is predominantly mid-line or lateral and to say not only what advice he would give, but what the prognosis would be. The osteopath wouldn't commit himself to such a position, but made his comments in the context of 'an osteopathic management plan'. A further contrast can be drawn between the consultant who takes the view that, "We cannot begin to answer any

of these questions unless we have a reasonably accurate working diagnosis.” and the osteopath who is prepared to say what treatment he would give apparently without having come to a diagnostic decision. So at first sight, it appears that diagnosis is less important to the osteopath than to the surgeon. But much may rest on what is meant by diagnosis; it might be that ‘diagnosis’ in conventional medicine and ‘management’ in osteopathy are different terms for the same thing. Closer reading of the text, though, suggests not. The osteopath sees management as developing through four related stages *viz.:*

- ❖ Investigating the underlying pathology;
- ❖ Assessing postural and other ergonomic factors;
- ❖ Considering psychological and other background stress factors; and
- ❖ Developing short-term and long-term management plans.

The orthopaedic surgeon on the other hand sees diagnosis in this case as the task of assigning Bill to one of four diagnostic groups with treatment of the first group being dependent on the site of pain:

- ❖ Myofascial or non-neural or non-radicular pain;
- ❖ Radicular pain involving the nerve roots or cauda equina;
- ❖ A mixture of both;
- ❖ Pain associated with a radiological abnormality such as spondylolisthesis, tumour or infection.

It is possible to see further significant differences between the two approaches. The osteopath is more exploratory and inquisitive using the words ‘investigating’, ‘assessing’, ‘considering’ and ‘developing’, to introduce each part of the management, while the orthopaedic surgeon identifies definite states of affairs; whether or not there is radicular

pain or a bony anomaly, for example. The focus for the osteopath is to *evaluate* the situation while for the orthopaedic surgeon it is to *categorise* it.

Together these appear to represent different ways of thinking, which at this stage seem incompatible, and suggests that orthopaedic surgeons, unlike the osteopath, are using some kind of algorithmic reasoning. If so it further suggests that surgeons are working from a given number of possible diagnoses and the purpose of the diagnostic process is to identify which one defines Bill's problem. It is not obvious that the osteopath is working to the same reasoning process. It might be that these just represent different stages in the clinical decision-making process, where the osteopath is making the initial analysis more explicit, but will next move on to categorise his findings according to some, so far unidentified, criteria. The orthopaedic surgeon has quickly and perhaps preconsciously carried out his analysis and made the categorisation explicit. The Patient Study suggests this is not the case as here also there is a focus by the orthopaedic surgeon on categories, and by the osteopath on producing a narrative that brings together into one explanation as many factors in the story as possible. In addition, the way in which each incorporates the patient's life history and psychosocial factors is significantly different.

3.4.1.3 *Dealing with External Factors*

In the Case Vignette the osteopath and orthopaedic surgeon interpret psychosocial factors differently. The surgeon states, "We should also note that strong psychosocial factors often influence the amount of distress and disability that back pain causes." Here, the emphasis is on psychosocial factors influencing *the distress and disability caused by* the back trouble and not the back trouble directly. On this account back trouble causes distress and disability that is then made worse by psychosocial factors. The inference is that if the back trouble is removed, the psychosocial factors will no longer have anything to influence and so will drop out of the picture. The osteopath, on the other hand, appears to have a different view on this as he states, "This picture (disrupted mechanical efficiency) now has to be placed within Mr Marshall's history and environmental circumstances – in particular, worries about redundancy and finances. Such factors are

potent causes of muscle hypertonia and neural sensitisation.” Here the psychosocial factors are seen as causal *in* the back trouble, not merely aggravating the distress caused *by* the back trouble. If the mechanical factors (which it is agreed are a major part of the trouble) were to be removed, the psychosocial factors would still be making a significant contribution to the overall trouble whether or not there was pain as a result. The different ways in which the disease focus (pathology, congenital abnormality, maladaptation, etc.), external factors (including psychosocial, life-style and medically significant past events) and the illness as experienced by the patient, relate to each other will form a key theme in my thesis.

The Patient Study supports this conclusion. In each case, the orthopaedic surgeon’s diagnosis focuses on local tissues and pathology; in Mrs A it is “mechanical low back pain with no involvement of the spinal cord or spinal nerves. It is most likely to be due to facet joint degeneration ...” In Mrs B it is “a mechanical type of pain not involving the spinal nerves.” Mrs C’s problem “is most likely to be mechanical due to degeneration of the disc.” This contrasts with the osteopath whose diagnosis is much broader and while not disagreeing with the pathological assessment, views this as only part of the trouble.

3.4.1.4 *Concluding comments on the orthopaedic surgeon and osteopath*

I have identified *prima facie* differences between the way osteopathy and conventional medicine, exemplified here by orthopaedics, understand musculo-skeletal problems (at least in these examples). For the osteopath, the patient’s trouble is part of a wider story that incorporates past history and adaptation to previous events, current psychosocial challenges, the overall efficiency of the whole musculo-skeletal system, plus occupational and domestic physical demands. The orthopaedic approach appears to be much narrower, focusing primarily on local pathology, as demonstrated by the back trouble in the Case Vignette where it is described as a discrete “genuine organic complaint”, the effects of which are made worse by external circumstances.

3.4.2. *The physiotherapist and the general practitioner*

Comparison between the osteopath and both the GP (in the case vignette) and the physiotherapist (in the Patient Study) is secondary to the main purpose of the study which is to compare the osteopath with the nearest secondary care equivalent, orthopaedics. Nevertheless, comparing the osteopath with both the GP and the physiotherapist reveals some interesting differences and similarities.

The GP is similar to the osteopath in that she takes a broad look at the patient and considers a wide range of factors, but finally focuses on a specific problem in a similar way to the orthopaedic surgeon. The physiotherapist also considers a wide range of factors and although staying with them all in his summing up, aggregates them into a number of parallel explanations rather than combining them into a single account.

The GP's approach to the psychosocial and medical history aspects are interesting. She is aware of Bill's situation with regard to work and regards it as significant, though she doesn't mention his wife's disability. One particularly illuminating passage comes early on where she states, "... before I can decide about management and referral I need to know more about the previous episodes. What precipitates the pain? What does Bill do when he gets the pain and what treatment and investigations has he had?" This is immediately followed by, "Bill should have had my usual chat about 'back care'." This apparent contradiction between seeing the problem in the context of previous episodes plus Bill's current way of life, and lumping all 'simple mechanical back pain' together into a single category, suggests an implicit conflict between diagnosing categorically, which leads to the 'usual back care' advice for that category of problem, and the feeling that there is something else going on that is particular to Bill and which has a bearing on the outcome of the problem. The 'something else' is assumed to relate to external factors, for instance the threat of losing his job, as well as to the previous episode of back trouble. In other words, for the GP, psychosocial factors are regarded as significant, but how this relates to the 'simple mechanical' problem that Bill is diagnosed as having remains

unclear. It suggests that, for the GP, the simple medical model of disease causing illness is insufficient on its own fully to explain Bill's complaint and that there is a need to include other factors, in this case external and historical events. This notion is strengthened later when she says that the referral letter "should contain Bill's social history so that the consultant understands the reason for seeing him." This is somewhat strange as the usual reason for referring to a consultant is because the problem is obscure or technically challenging, not because of psychosocial factors. Presumably she means that he is being referred because he wants to get back to work and is seeking a 'quick fix', but she is not expecting the orthopaedic specialist to do anything she can't. This suggests a distinction in her mind between the biomechanical problem that is the cause of the trouble and the aggravating psychosocial factors that are just complicating it.

It is not clear what part these factors play in understanding and managing the trouble. For example, she wants to know more about previous episodes, aggravating and relieving factors, but doesn't say in what way this information would influence her advice and action. I am not suggesting that she couldn't provide such an account if pressed – there was a 500 word limit on the piece which reduces the scope for such explanations – but such an account appears not to have a high priority. In fact the ambiguity expressed here may not be very different from the osteopathic gestalt described in the previous section.

The physiotherapist's reports, as might be anticipated, demonstrate elements of both the orthopaedic and osteopathic emphases. A considerable amount of information is provided but it is not confined to structural and physiological data; it also includes details about patients' histories, occupations and life-styles including modifying factors and expectations. However, it doesn't go as far as the osteopath in putting it all together into a coherent narrative. The different elements, although all considered and in more detail generally than the osteopath, remain as separate elements. So, under the heading 'Aetiology' in each report there is a list of contributory factors with some linkage between them – particularly so in the case of Mrs A – but less attempt to stand back and describe a complete picture. Also there are factors reported as part of the 'History' and 'Pain

Patterns and Modifying Factors' that don't feature explicitly in the 'Aetiology'. These include, in the case of Mrs A, her knee problem and limitations in particular activities. Nevertheless, these are differences in emphasis rather than of kind.

In general then, both the GP and the physiotherapist make the concerns of the patient with respect to life-style a more central theme in their analyses than do the orthopaedic surgeons.

3.4.3. *Patients and practitioners*

In addition to the differences identified between practitioners in both studies, which may reflect different professional values, there are differences in the language used by patients to describe their trouble, and that of practitioners to explain the problem. The patients described, and the practitioners reported, their trouble in the context of their everyday lives.⁴⁸ The difference comes when the diagnosis (or its equivalent) is made. Here, the explanation for the trouble refers not to everyday activities, but to biology and mechanisms with an overlay of psychosocial explanation. This suggests that descriptions of illness arise from the everyday experiences and interests of patients while practitioners' explanations (on behalf of patients) represents their interests in biological matters. It also suggests descriptions of different worlds⁴⁹ which relate to the different experiences,

⁴⁸ I am consciously glossing over a rich vein of philosophical interest here. The fact that I have allowed only the practitioners' accounts of the patients' troubles means that we do not have access to what the patients actually said and can't therefore use their words to access their experiences. This bypasses a potentially fruitful exploration of contrasting patients' phenomenological experiences with practitioners' medicalising (or 'osteopathising') those experiences, (For a fuller account of issues related to the medicalisation of the body, see for example, Evans, 2001; Leder, 1992; Toombs, 1992; Zaner, 1992) The whole area of embodiment is under-explored in osteopathy despite its obvious links with manual treatment, though I try to offer some recognition of it in the following paragraphs. A significant exception is Bevis Nathan's work on touch, but patients' perceptions of their bodies and how they link to osteopathic evaluation and treatment requires much more in-depth analysis. (Nathan, 1999)

⁴⁹ The use of 'worlds' here and subsequently, requires clarification. I use the term to describe a particular focus for understanding a range of experiences rather than as physically different worlds. This latter use of different worlds is frequently used by philosophers to hypothesise situations in order to test logical relationships. In these cases the other world doesn't actually exist (or not that we know of). This is different from the sense in which I
cont ...

interests and expectations of patients and practitioners. Patients' worlds involve relationships and activities; getting on with those things that characterise and are valued by human beings, as Korr described (See 1.4.2.2.2, p.32), which focuses on the person acting on and in their environment. Practitioners' worlds involve biological mechanisms and understanding the machinery that enables the range of activities that people value. Its primary focus is internal.

The difference between these 'worlds' can be seen if we try to map the patient's presenting symptoms with the practitioner's explanation in the Patient Study. In his report on Mrs A, the orthopaedic surgeon describes the site of pain, the fact that the pain is relieved by paracetamol and a reclining chair, that there is tenderness over specific points, morning stiffness, tight hamstrings and a straight leg raising test of 80°. There is also absence of key 'red flag' signs. However, his Conclusion refers to mechanical pain and joint degeneration with possible spinal canal narrowing. These two accounts clearly describe different kinds of state, one based broadly on the life of the patient – that she feels better for taking an analgesic, sitting back in a comfortable chair but she feels stiff when she starts to move in the morning – while the other describes specific parts of her constitutive anatomy – joints and spinal canal. Without knowledge of orthopaedic reasoning, i.e., how the practitioner translates the patient's world of symptoms into the practitioner's world of diagnosis – how symptoms *a*, *b* & *c* become diagnosis *x* – it is far from clear how a conclusion is drawn from observation. There is no direct mapping between signs/symptoms and (biological) diagnosis; it isn't possible to use the language terms used in one to describe the other.

am using the term where the different worlds are real – at least as a perception by the person concerned – but describe different aspects of an item (rather like the story of men feeling an elephant) or different systems of organisation of events. We therefore talk about a 'child's world' in which the child's experiences are interpreted according to certain preconceptions about what the world is like and which may be different from an 'adult's world'. My point is that the same experiences can be interpreted differently depending on the context in which they are perceived.

In the osteopath's account different language terms are used to describe the patient's signs/symptoms and the diagnosis. For Mrs A he describes the site and quality of pain; that the pain is relieved by movement, a reclining chair and by going to bed; that it is aggravated by lying on her left side and by bending; that her back stiffens after a moderate walk and can wake her after 2-3 hours in bed. The diagnosis is more difficult to summarise, but consists of two parts; the tissue(s) believed to be responsible for the symptoms, and the aetiological factors that have caused the tissue(s) to behave in this way. Here too the language terms used to describe the tissue causing symptoms do not map directly onto those used by the patient to describe her complaint and, as with the orthopaedic surgeon's account, requires additional interpretation.

The point I am making is that the process of deciding that, "I am really ill", is different from that of deciding which dysfunction or disease is causing the illness. The first is an ontological question, the second epistemological. Practitioners are involved in both, but have greatest technical expertise in the latter. This reiterates some of the subject matter of Chapter 2.

A core assumption entailed by the medical model is that describing illness as a subcategory of disease explains the patient's experiences in terms of disease as biological mechanism. This fails to address how patients' descriptions of experiences that disturb their lives, such as pain and disability, relate to the biological accounts that purportedly explain them. My point is that the different interests/worlds lead to different kinds of enquiry; an ontological question about illness – what experiences form the stuff of illness and therefore justify professional intervention – and an epistemological one focussing on disease – which disease explains this *particular* collection of experiences.

On the assumption that illness can indeed be explained by disease, and that disease is a scientific biological phenomenon, it is clear why medicine's primary interest is in the epistemological question – technically challenging, but conceptually straightforward. Illness, as we have already seen in the studies, is rooted in the subjective experiences of the patient while disease belongs to medical theory despite the fact that, in ordinary

usage, the terms are frequently interchanged. Boorse criticises Fulford for analysing disease according to ordinary usage, though in a footnote he admits that Fulford moves from ordinary (in Chapter 2) to technical usage (in Chapter 3).⁵⁰ (Boorse, 1997 p.62) Boorse's assumption, quoting Ladd, is that "the concept of disease is primarily a technical medical concept." (*ibid.*) This is the assumption I am following on the grounds that this terminology is now generally accepted. The desire to move to a disease-based practice of medicine was put to me by a doctor colleague who said, "Now that we know so much about diseases, why do we need a concept of illness?" This view is countered by Hesslow, who questions whether the concept of disease contributes substantially to the ability to *practise* (as distinct from *theorise about*) medicine. (Hesslow, 1993) In addition to the illness/disease distinction there is now a (so far unnamed) category of medical problem as exemplified by HIV infection, where it is possible to be neither ill nor have a disease, but still to require medical treatment on the basis of having a risk factor.⁵¹ As can be seen, there is considerable lack of clarity here regarding the use of terms, and without attempting to make any claim to improve the conceptual muddle, I am aware that I must be clear about what I mean when I use these terms.

⁵⁰ Fulford's argument is that even in technical usage, values are implicit.

⁵¹ Treatment of risk factors rather than an actual disease is fast gaining ground in medicine. The most common of these is treatment for hypertension and 'high' blood cholesterol levels. Although hypertension is frequently referred to as a disease, both these cases are diseases only in the Boorsian BST definitional sense of falling outside normal limits. There is no pathological lesion (unless additional cholesterol is regarded as a pathology), no known aetiological agent, and normally no clinical signs or symptoms. Work on the genome project is identifying additional genetic risk factors where the optimism is that gene therapy will prevent diseases from developing. Quite apart from the fact that the gulf between the ability to diagnose genetic disease and provide effective therapy will remain wide for some considerable time, there is the problem of knowing how probable it is, or under what circumstances a particular genetic defect will result in an illness. (Bayertz, 1998) This raises considerable ethical problems for screening and treating of people who are not ill and calls into question our intuitive understanding of health. It is highly likely that everyone will be found to have genes that act as risk factors for some disease or other. Bayertz, adapting Murphy's wry observation that a healthy person is someone who hasn't had enough medical tests, suggests that in future 'health' will be replaced by "universal presymptomatic multimorbidity."

My analysis of function will be seen to rest on the way in which the notion of function is implicit in concepts of disease and illness. To prepare for that, I need to make clear what my initial assumptions about illness are. In the earlier section on terminology, I stated that I would be beginning my analysis by assuming one understanding of illness and moving to another, more philosophical one. My initial stance is to take illness to be those experiences that prompt a patient (or someone on their behalf) to seek medical help; patients, as a matter of fact, visit health care practitioners *inter alia* because they feel they are ill. What prompts them to interpret certain experiences as illness and other experiences as something else, e.g., hunger, grief or tiredness for example, is a subject for further analysis. It follows that the particular experiences that prompt patients to feel themselves to be ill are implicit in the language terms used to describe the illness to the practitioner. These terms, in turn, encompass the meaning and significance the experience has for the patient.

The rôle of the practitioner is therefore twofold; first to support (or not) the patient's judgement that they are ill, which involves examining the patient's evidence for claiming to be ill, i.e., the signs and symptoms, and to make an ontological judgement about whether these form the stuff of illness. Secondly, to explain the illness biologically in terms of dysfunction or disease. This is made explicit in the Case Vignette where the orthopaedic surgeon states that "Mr Marshall ... has a genuine organic complaint", i.e., he really is ill, from where he moves on to examine him in order to determine "the exact location of any tenderness" and to make a diagnosis of either "lumbar instability syndrome" or "one of the soft tissue syndromes."

The language used by patients and practitioners suggests that they are describing different interests and worlds and is not interchangeable – patients' language of signs and symptoms cannot be used to describe diagnosis and *vice versa*. It is also possible that practitioners, rather than making judgements that a patient is ill *per se*, that is, on the same criteria that ordinary people normally make these judgements, is assessing to see if there is a diagnosis, or likely diagnosis that would fit the symptoms and, on the basis of that,

judging whether or not a person is ill. Whichever, it looks as though two processes are occurring, each with their own language, that at times might be being muddled, one, based on ordinary peoples' experiences of what it is to be ill, and the other, based on doctors' views of what causes illness.⁵²

3.4.3.1 *The medical language used to describe disease*

How do the accounts of dysfunction and disease described in Chapter 2 echo what is found in the Case Studies? Is there evidence that practitioners use predominately naturalistic or normative concepts of disease? The evidence is inconclusive. There is a tendency for the orthopaedic surgeons to focus on categorical information, data falling inside or outside normal limits. This suggests a strong influence from naturalistic theories, i.e., that parts and their behaviour can be judged normal or not from routine tests. The physiotherapist and to a lesser extent, the osteopath, also use categorical tests but place less weight on them. Naturalistic assumptions are strongest in the Case Vignette where the orthopaedic surgeon explicitly categorises back pain into four areas and seems to assume that all back pain falls into one or other category.⁵³ The dysfunctional basis for this is ascribed to one of the following: myofascial dysfunction,

⁵² Daniela Mergenthaler reviews Oliver Sack's writings where he explicitly talks about patients living in 'other worlds' in which the demarcation between the normal world of healthy living and the phenomenological disease world is not based on any notion of real disease. (Mergenthaler, 2000) She concludes that although Sacks's "individualizing neurology contributes to liberate neurological disease and many other human phenomena from devaluating stigmas and to rehabilitate them as other ways of being.", (p. 283-4) it is not helpful to medicine because it is not amenable to categorising due to the individualisation which is its strength. My point is that what Sacks (and Mergenthaler) refer to as disease worlds are better termed 'illness'. This releases 'disease' as a specific term to describe medically significant pathophysiological states. This doesn't undermine the main point that analysis of patients' experiences of 'disease worlds' would add considerably to practitioners' understanding.

⁵³ When I presented my findings to the orthopaedic department of my local hospital, the surgeons there were quite critical of this categorisation, despite the fact that it was a surgeon specialising in spinal problems that had written the paper. It was not clear whether they felt it was over-simplistic, or just wrong.

nerve root effects, a mixture of both, or where there are radiological abnormalities. (Appendix, p. xxviii)

Evidence for normative judgements are also found in the Studies, explicitly in the osteopath and physiotherapists' reports and, implicitly, in the GP's. It is hinted at in the orthopaedic surgeon's report of Mrs B, where he suggests that "she would benefit from a programme of spinal mobility and muscle strengthening exercises". This is aimed not so much at restoring the normal function of parts, as these haven't been identified, but at doing something with general beneficial effect for the patient.

The osteopath is the most explicit about focussing on the general welfare of the patient. In the Patient Study his 'Opinion' explains the trouble in the context of a number of factors. Information is drawn from a wide source to describe the state of affairs. In the Case Vignette, the emphasis is not on making a categorical diagnosis, but on defining the state of affairs that has come about, which may be unique to Bill and account for his trouble.

Another interesting observation is that in all the reports value terms were used to describe patients' states of affairs. Apparently neutral terms (to the practitioners who use them) like 'deformity', 'inappropriate signs', 'tenderness', 'red flag signs', all derive from evaluative notions. Deformity is a common value term, but even 'tenderness', which is usually taken by doctors to be a synonym for painful, has its etymological roots in the French *tendre* and Latin, *tenerum*, meaning 'stretched out, delicate' and allied to *tenuis*, which is Latin for 'thin'. In other words, 'something tender that requires great care', which is clearly evaluative. Red flag signs are distinguished from other signs on the basis that they indicate something seriously wrong which has potentially bad consequences. Austin's dictum about 'the first word' is important here, for although physicians may think they are using terms in a value-neutral way, their value-laden roots continue to feed the meaning.

3.4.4. *The different interests of primary and secondary care practitioners*

Differences between practitioners in the studies may represent differences in primary and secondary care rather than between professions *per se*. If my analysis in the previous section is correct, then it is likely that there will be significant differences between primary and secondary practitioners because primary care practitioners are more heavily involved in corroborating (or not) patients' claims to be ill, while secondary care practitioners receive patients who already have their claim to be ill supported by another doctor.

It can be argued that primary care practitioners have a particular duty of care as the first point of contact for a patient. This applies especially to general practitioners where the duty has statutory force. Although statutory obligations don't apply to all practitioners, the primary practitioner is first to take responsibility for understanding and interpreting the person's problem then advising on what can be done, either offering treatment themselves, or referring to a more appropriate practitioner. This involves hearing the patient's story, deciding on whether the problem is one that meets criteria for being dealt with by them, coming to a diagnosis and finally explaining the problem to the patient in the context of the original story. The need to explain in the context of the presenting illness can be one of the most difficult parts of primary care. Frequently it is the GP who explains what a diagnosis means, even when the patient has seen a consultant; consultants may actually say something to the effect of "Your GP will explain it to you." It is probable that primary care practitioners are particularly interested in the patient's story as a means to understanding the person with the illness and what the illness means to them. Without that understanding, it may not be possible to communicate the more technical side to them.

Secondary care practitioners, such as the orthopaedic surgeon, are not responsible in the first place for deciding whether or not the patient's story represents a real medical problem, though of course they may want to check this for themselves. The history they

take will be aiming to complete information in order to clarify the diagnosis. Their main focus is either technical, as with surgery, on difficult cases – rare, unusual presentations – or complex problems.

Not all professions fall neatly into one or other category. Much depends on the criteria used to differentiate primary from secondary care. Professions such as osteopathy, physiotherapy, psychiatry and much of CAM, involve elements of primary, secondary and even tertiary care to the extent that some patients consult them as first contact, others are referred and yet others receive follow-up, supportive or palliative care.

The reports from the Patient Studies suggest that the orthopaedic surgeon's focus was on local tissue states, performing tests to establish the physiological/pathological state of particular areas and ensuring that no pernicious states lie undetected. The osteopath and physiotherapist by comparison are more interested in evaluating the total problem in the context the whole patient – perhaps more explicitly by the osteopath than by the physiotherapist.

It is probable, then, that some of the differences identified earlier, focussing more broadly on the patient in the context of her environment and medical history in one case and on the local tissues in another, are differences between primary and secondary practitioners rather than between disciplines.

3.5. Key uses of function to be analysed further

Preliminary analysis suggests that there may be two ways in which the term function is being used in practice. The first, and the main focus for secondary care, is the proper function of body parts. This is important for diagnosis of disease as it defines dysfunction and determines the parameters for intervention. The second, and a focus for primary care practitioners is illness as a failure in the ability of a person to engage in those life activities they normally take for granted or just expect to be able to do.

The Patient Study indicates that in practice the differences between them are not as clear cut as the above account suggests. It is more probable that there is a complex mixing of foci, terms and ideas. In particular, it may be that the primary care focus on the activities of people is covert and implicit in the way that general practitioners, for example, actually work and record their findings.

A key task for the thesis is to examine the logical connections between function, dysfunction, illness and disease and analyse the rôle that function ascriptions play in their conceptualisation. As a starting position, two *prima facie* concepts of function can be described. One, the proper function of body parts, and the other global function of a person.

3.5.1. *Focusing on the property of parts* (F_{phys})

An important focus for medical research and, in the first instance for secondary care, is to determine the parameters within which a biological part can be said to be functioning, that is, operating within normal limits. This is to identify when an item is failing and has become a major causal factor in illness. It is therefore important that this information is a reliable indicator of normal and abnormal activity as treatment may be based on it. Function here is therefore the “proper” activities of body parts. Proper, that is, with regard to what is necessary for ‘normal’ health.

3.5.2. *Focusing on the activities of people* (F_{glob})

For primary care practitioners the initial focus is not so much on the behaviour of body parts but on the way in which disruptions to patients’ normal taken-for-granted activities leads them to interpret these as medical problems. Patients perceive themselves to be going well or not (so) well and this perception, as can be seen from the studies, is related to and perhaps based on their perception of how well they are able to function (F_{glob}) in a particular context. Practitioners deal with patients’ problems in the ‘field’, rather than through the intermediary of another practitioner, as hospital doctors do. The

explanations from the GP and osteopath entails, to some degree at least, the context that prompts a patient to seek care, though this may be implicit rather than explicit.

Chapter 4. Function Concepts in Clinical Practice

Chapter 4 builds on the analysis of the Case Studies by focusing further on the suggestion, generated in Chapters 2 and 3, that practitioners use two concepts of function, focusing respectively on the behaviour of body parts (F_{phys}) and the behaviour of the person as a whole (F_{glob}). A critical question is whether knowledge of and attention to F_{glob} is an essential part of practice or merely a veneer of humanity superimposed on the real work of medicine, which is dealing with issues arising from F_{phys} . I argue that enquiring into each of these two areas requires different strategies, an epistemological strategy to determine whether F_{phys} is operating normally and an ontological strategy to determine which behaviours constitute F_{glob} .

4.1. The significance of F_{glob} and F_{phys} for practice

The outcome of Chapters 2 & 3 made clear that the concept of function is important for practice both theoretically and practically though it may be hidden beneath more familiar concepts. But what does it mean for practice? Perhaps the attention to the global functioning of the patient is merely a humanitarian gloss put on their work by caring practitioners. Put more crudely, competent practitioners correctly diagnose disease and prescribe appropriate treatment; if they also demonstrate care and concern for the person, all the better, but it's not a key part of their work. Even if their professional governing body decides that being a caring person is a necessary part of practice, it still wouldn't make it a necessary part of the core work of medicine, which is to diagnose and treat diseases.

4.1.1. F_{glob} as an implicit foundation of clinical practice

To what extent is F_{glob} , with all the values and personal expectations it entails, a *fundamental* part of practitioners' judgements? After all, it is possible to diagnose and

treat someone knowing only the symptoms related to their problem. What is needed is a population of people who either have no biological problems but are still ill, or have permanent biological problems but are not necessarily ill, in order to analyse how practitioners manage them. Elderly people are a group who suffer more pathologies than any other section of society. How do practitioners manage them and is it appropriate?

4.1.1.1 *F_{glob} in the elderly*

Elderly people are a large, though in many ways (medically) unrepresentative, population. They suffer disproportionately more illness than younger people. Keith Thompson, a General Practitioner, examined the way he and his colleagues were dealing with elderly patients. (Thompson, 1986; Thompson, 1992) He reviewed the records of 603 patients over the age of 70 in his practice and found an average of 3.2 pathologies per patient. After excluding the survivors of pathologies from earlier life, he discovered that 86% of cases:

had eight diseases so uniformly and widely distributed that I came to believe that if we plot our patients against age, rather than against environmental and behavioural characteristics, we are really looking at an abnormal process of ageing if such conditions have not developed by the eighth decade. (1985, p.730)

This 'octad' consists of:

1. Obesity
2. Hypertension
3. Type II diabetes
4. Atherosclerosis
5. Cancer
6. Endogenous depression
7. Autoimmune disease
8. Immunodepression

Thompson notes that they share the common feature of being of intrinsic origin and must have started to develop long before the stage where they could be detected. He “felt that these components of my octad could almost be regarded as parts of one super-disease, leading to death.” (*ibid.* p.730) What are regarded as the diseases of ageing begin their development in infancy. The traditional hospital driven model of single diseases that requires accurate diagnosis and specific treatment, he argues, is not appropriate to general practice treatment of the elderly. Screening will inevitably find evidence of ‘pathology’ and no amount of treatment will eradicate it. The focus should be on management rather than treatment where this is guided by the “functional ability” of the patient. (*ibid.*)

Thompson makes explicit what (I am arguing) is otherwise implicit in the practice of medicine. First, that ‘disease’ is a normal, that is an ubiquitous, fact of life for that community. Everyone over the age of 70 will manifest signs of one or more diseases. This is a serious finding for Boorse’s BST, for assuming Thompson is correct and it is the absence rather than presence of these ‘diseases’ that is abnormal in the elderly, then on Boorse’s account they cannot be diseases, at least, not without stipulating at what age species-typical behaviour is assessed, and if he does that he cannot apply his findings to groups other than the one he stipulates. In any case, this stipulation would be difficult to do without entailing a further value-judgement. Second, what is important is not the presence of disease itself, but its effect on the person’s “ability to function”, as Thompson puts it. In other words, on a normative understanding, illness is defined by its effect on the life of the person and their ability to do the things they want to do and not by the presence of pathologies. Health consultations and management decisions must take account of the person’s ability, how the condition affects the person’s life now and how it is likely to affect them in the future.

This means that rather than humanitarian concerns for the person as a whole being an optional, though important, extra on top of medical diagnosis and treatment, they are

embedded in the way practitioners actually work, that is, do core medical work. The fact that it is normally hidden merely disguises its importance.

4.1.1.2 *F_{glob} in the non-elderly*

What is explicit in Thompson's account of disease and illness in the elderly is, I claim, implicit in all patient consultations. The reason F_{glob} is covert in most cases is because the judgement, to see a practitioner because they "are really ill", is made initially by the patient and in most cases corroborated by the practitioner. In the elderly, especially where screening programmes pick up pathologies, judgements about whether they "are really ill" and deserving of care is made by the practitioner. For example, in all three cases in the Patient Study it was pain, plus, in the case of Mrs A, morning stiffness, that caused the patients to consult a health practitioner. But this simple observation masks much of what is happening behind the pain label. What makes pain a ubiquitous reason to seek help? Physical pain can be experienced for a number of reasons that do not necessarily prompt someone to visit the doctor – knocking into a table, or pricking oneself on a needle for example. Pain *per se* is not sufficient to warrant medical help, but unexplained pain, unremitting pain or pain that disturbs normal life, is. The amount or degree of pain is obviously a factor here. Pain that impinges on normal activities, or that occurs without sufficient reason, is enough to seek help. For example, in the physiotherapist's account of Mrs C, he notes that

she mentioned two problems that concern her: 1. She is having difficulties lifting her youngest child; and 2. She recognises that the constant aching is affecting her, both physically and emotionally and, therefore, those around her. (Appendix, p. xx)

Although Mrs C doesn't consult the practitioner explicitly stating that these are the reasons she has come, the physiotherapist elicits, nevertheless, that they are an important, perhaps major, part of what prompts the visit. The physiotherapist's report helpfully makes the patients' expectations explicit in all three cases. In addition to Mrs C, already cited, he quotes Mrs A as wanting "... to ease the pains in her back. Whilst she feels that she will never be rid of all her pains she would like to have more 'control' over it."

(Appendix, p. iv); and notes that Mrs B is “Concerned at the increased symptoms this year and although she copes with them and they are not obviously stopping her from doing anything, there is an undercurrent of frustration.” (Appendix, p. xii) Reference to activities is evident throughout all three cases, though the physiotherapist and osteopath perhaps make most use of them in their analyses.

Two linked elements relating to what counts as illness emerge from this; disturbance of normal activities, such as being unable to lift a child, and disruption to normal life interpreted in the case of Mrs A, for example, as loss of control. This resonates with the conclusions of both Nordenfelt and Fulford. Nordenfelt (1995) analyses health and illness in terms of *ability* to achieve vital goals, and Fulford defines illness as “action failure”. Although there is ambiguity in Nordenfelt’s account over whether he is referring to those vital goals necessary for a basic level of human life, or to an individual person’s vital goals as those goals that give meaning to their life, nevertheless the focus on ability is helpful in identifying what causes someone to consider that they are ill. For Nordenfelt, illness is defined in terms of an incapacity, the consequences of which is a failure to achieve vital goals.

What this means is that instead of Thompson’s account of the rôle of the practitioner being to facilitate functional ability in the elderly (rather than simply to treat disease) as being the exception, it is actually the norm. It is hidden in most (non-elderly) cases because the judgement that “I am really ill” is made by the patient before seeing the doctor who tacitly agrees it. But the significant work is to improve F_{glob} by improving (where appropriate) F_{phys} .

4.2. Function in practice: applying the analysis of function to its use in practice

It is now looking as though the context for making decisions about F_{phys} is F_{glob} . Recalling what was said at the beginning of Chapter 2, context is important for the concept of function because it is implicit in ‘the doing of y being the function of x ’. Knowing that y is

the function of x infers the context in which y is done. I am now suggesting that y as biological function is significant only in the context of the patient's global function F_{glob} . Practitioners do need to know about F_{phys} , but it only has value in practice (rather than theoretically) in the context of F_{glob} .⁵⁴

What evidence is there from the Case Studies that context is such a significant factor in practice? It was suggested in Chapter 3 that the orthopaedic surgeons (more than the osteopath) equate function with the behaviour of biological parts in the context of local structures and general features of the patient such as age and gender, while the osteopath (more than the orthopaedic surgeon) views biological behaviour in a broader context which includes the whole musculo-skeletal system, the patient's occupational and medical history and their current life-style.

At first sight the difference appears to be one of degree; the orthopaedic surgeon considers parts, such as an intervertebral disc, in the context of the low back, while the osteopath considers parts in the context of a more global understanding of the person. But we need to be sure that both mean the same thing by 'local structure' and that both come to a knowledge of it by the same epistemological route. What is the evidence that both practitioners are considering the same thing? If they are, it is probable that differences are merely of degree with considerable overlap between them, but if they are not, if each means something different by 'local structure', it may be that the difference represents something significant that may also distinguish osteopathy from conventional medicine.

⁵⁴ It is important to reiterate here that F_{phys} is derived from F_{biol} in the sense that physiology is a subcategory of biology. F_{glob} as the actual global ability to function for the particular patient under consideration by the practitioner is linked to F_{pt} which is the patient and practitioner's shared assumption of what 'normal' people should be able to do – the things they just for granted.

If 'local structure' is understood differently it is likely that each practitioner has a different analytical strategy in mind. In this case, we also want to know what that strategy is, where the information comes from, and what tenets or guiding principles structure the information. The first task, therefore, is to look at the Case Studies in more detail to see if they provide clues to these questions.

4.2.1. *Analysing the function of parts*

Both the osteopath and the orthopaedic surgeon work with a notion of 'local part'. For all three patients they agree that the main focus is on the tissues of the low back. Nevertheless, there are significant differences between them based on how far they extend their clinical gaze⁵⁵ and what they consider to be significant to the problem.

The orthopaedic surgeon summarises Mrs A's problem by "suggest[ing] that it is mechanical back pain It is most likely to be due to facet joint degeneration" ⁵⁶ (Appendix p. ii) He concludes, "this lady has back pain that is mechanical and most likely due to facet joint degeneration with perhaps an early element of spinal stenosis."

Mrs B's problem is explained as, "a mechanical type of pain ... probably a mixture of the old wedge fracture, muscular and possibly intervertebral disc related." (p. x)

Finally, Mrs C's problem is summarised as. "mechanical back pain with features that may represent discogenic type of back pain ... most likely to be mechanical due to degeneration of the disc." (pp. xviii-xix)

⁵⁵ This borrows Sheridan's translation of Foucault's now famous term, "the medical gaze". (see the Translator's Note in Foucault, 1973, p. vii) I am suggesting that what practitioners consider to be important to a problem (and what is irrelevant) result from a particular construct they give to human problems. My point is that orthopaedic surgeons and osteopaths work from different constructs and therefore give different weightings (or value) to specific items of information. I will develop this further in looking at ontological enquiry in 4.2.3.2.

⁵⁶ I have omitted negative conclusions from the quotes in order to make clear what the orthopaedic surgeon's explanation of the problem is. So quotes such as "with no cont ...

The osteopath explains Mrs A's problem in terms of the symptoms, which "are predominantly due to muscle ischaemia affecting the lumbar and thoraco-lumbar erector spinae muscles, together with the tensor fascia lata bilaterally." (p. vii) After this it is quite difficult to differentiate descriptions of the state of affairs that constitutes the problem from its aetiology, the factors that have contributed to that state of affairs. He describes the patient's "severe pes planus which has resulted in eversion of both feet and a genu valgum deformity, plus a tendency to internally rotate both hips. These mechanical changes in the lower extremity have put strain on the lateral postural muscles; in particular the tibialis anterior and peroneus longus. ... Spondylotic changes in the lumbar spine have resulted in reduced disc space and further restricted lumbar mobility." (p. vii)

Mrs B is described as having "a poorly compensated spinal curve with excessive muscular activity ... the paraspinal soft-tissues are hypertonic almost to the point of spasm. ... The resulting scoliosis is concave to the right ...causing a 'high' side on the left thorax. The pelvis is shifted sideways to the right. ... although the {L1 wedge} fracture itself has healed, the soft-tissue changes have not resolved and the resulting chronic state is not functioning fully." (p. xv) Again, the difficulty is differentiating the explanation of Mrs B's presenting problem from the chain of events that has caused it.

Finally, Mrs C's "problem appears to be the result of a breakdown in the body's attempt to compensate for a primary short lower extremity on the left side. There is muscle hypertonia and fibrotic changes at the lower lumbar levels particularly on the right side in the erector spinae, and also in the tensor fascia lata and gluteal muscles. ... there is evidence of {minimal} degenerative change in the lumbar spine ... there is evidence of fatigue and ischaemic muscle pain." (p. xxiv)

involvement of the spinal cord or spinal nerves." are missing as they do not contribute to cont ...

These accounts highlight two linked and possibly significant differences; the first is the orthopaedic surgeon's focus on pathology, e.g., "facet joint degeneration", and syndromes, e.g., "mechanical back pain", to explain the pain as clearly as possible. This involves eliminating those factors that he doesn't consider to have a direct bearing on the problem, i.e., those not causing pain. The result describes a state of affairs, degeneration, discogenic pain, etc. The osteopath considers a wider range of states of affairs and, more significantly, places his emphasis on process, the relationship between states of affairs. This is especially true for Mrs A where the description of the process of biomechanical breakdown to explain her problem is extensive. As I noted above, it is difficult to distinguish between the osteopath's explanation of the patient's problem – the state of affairs – and its cause – the process(es) contributing to that state. The orthopaedic surgeon expresses little interest in process, focussing instead on the pathological state and its possible consequences.

The second difference relates to the extent of the clinical gaze. The orthopaedic surgeon focuses mainly on structures in the low back – the intervertebral disc, facets and muscles. The osteopath looks much wider not just to find other factors causing the pain, but to generate a broad picture of dependency. From the way his Impression is presented it is clear that the orthopaedic surgeon has a reductionist clinical approach focusing on the core of the problem. Thus he eliminates a range of possible states (particularly potentially damaging ones) until he is left with his diagnosis. The osteopath does something similar, i.e., attempts to explain the state responsible for the patient's symptoms, but then broadens his gaze to consider all the factors that may be maintaining that state and on which its continuation is dependent.

our understanding of what he thinks has happened, only what he thinks hasn't.

From this it is clear that the two practitioners do not have the same view of what is meant by 'local structure'. For the orthopaedic surgeon it is those structures that demonstrate pathological change and which fit into an acknowledged theoretical explanation, e.g., "mechanical back pain". For the osteopath it is an amalgam of processes and states that come together in a significant way to explain something more than just what is causing pain.⁵⁷ This is not to say that either is right or wrong. The clinical interest is different and this is influenced to a large extent by the mode of treatment each offers. If they are different, is the difference based on fundamental differences of assessment criteria, i.e., is each working from different standards of normal function?

I argued in Chapter 3 that the ability to diagnose depends on knowledge of the functions of specific parts. Clinical investigations assess the state of those parts against referential standards and the clinician judges whether or not they are contributing to the overall condition of the patient. The case studies suggest that the way this is done is different for orthopaedic surgeons and for osteopaths. The question for this analysis is to what extent this judgement is conditional on contextual factors. Do osteopaths and orthopaedic surgeons work within the same context?

This brief examination of the way each practitioner works with the concept of local structure suggests that each has a different understanding of context. The orthopaedic surgeon's context is the range of possible conditions that might explain the patient's problem and which are signalled by so-called 'red flag' signs. The osteopath's context is a

⁵⁷ This is interesting in the context of current debates in the manual therapy world about back pain diagnosis. There is little evidence to support many of the claims for back pain being caused by specific pathology. As I noted in the Introduction, most people over 40 have disc prolapses, everyone over 25 has degeneration of tissue; even heavy manual occupations do not necessarily lead to back trouble. There is no clear correlation between back pain and any of these factors. The application of traditional medical thinking to back trouble based on the triad of symptoms, pathology and aetiology, has failed to come up with a useful working model for dealing with these (common) problems. It is argued that treating back trouble as a medical problem in the same way that other illnesses are, causes some patients to adopt "fear-avoidance-behaviour" which creates disability. (Waddell, Newton, cont ...

global one of structural integrity where the functional ability of a local part is considered in the context of its contribution to the overall global capacity of the patient. Do these represent significantly different contexts or different degrees of the same context? The orthopaedic surgeon is concerned that the local situation might present a serious threat to the patient, hence the focus on red-flag signs. This suggests that global consideration of the good of the patient is implicit in his thinking. Local effects are important because of their implications for the whole person. This seems to indicate that there is little significant difference. However, the global context is different in the sense that the osteopath looks at the overall capacity of one particular patient, while the orthopaedic surgeon's sense of global is a general one; pernicious pathology in the spine is bad for all patients which is why it would be bad for this one.

This may represent a difference between orthopaedic surgeons (but not necessarily all conventional medicine practitioners) and osteopaths; orthopaedic surgeons' concept of context is a generalised one that is assumed to be shared by all people. The osteopathic concept of context includes a range of generalised assumptions, but has an explicit focus on the individual patient and factors that are unique to them.

4.2.2. *Analysing a person's ability to function*

Both practitioners, but particularly the orthopaedic surgeon, use a concept of the proper function of local parts, without which there cannot be a concept of dysfunction such as intervertebral disc degeneration, for example. The difference between them appears to be related to what counts as a local part and to the way context informs judgements about the diagnostic significance of the local part. Do both practitioners also work with a similar concept of the function of a person? Both are aware in a general way that the local

Henderson, Somerville & Main, 1993) My point is that 'back trouble' is actually a different, much broader concept than say, osteoarthritis of the hip.

problem exists in the context of a person; they both describe aspects of the patients' lives including how long they have suffered, their age, occupation and so on. The question is whether these factors form a context for the local changes which also explains the patient's illness.

Primary more than secondary care practitioners work explicitly with patients' global inability to function in the context of their environment. While gender, age, occupation and other modifying factors play a part in the analysis of the function of organs and tissues, they play a very significant rôle in judging the overall ability of an individual to function in their world. As Thompson (1982, 1996) makes explicit, the aim of primary care is to enable the patient to function and that will mean different things for people depending on their goals and expectations. Analysing osteopaths and orthopaedic surgeons may not provide a fair comparison; GP's, as demonstrated in the Case Vignette, or perhaps physiotherapists, might provide a more equivalent account. Certainly the GP is concerned to "help Bill to get back to work", to arrange for an x-ray primarily because of its "psychological benefit", and to refer to a specialist for the "reassurance of a second opinion". This demonstrates understanding of (or assumptions about) Bill's broader needs and it is in this context that she puts her understanding of the problem as "simple mechanical back strain". This contrasts with the opinion of the orthopaedic surgeon who concludes his account with the doleful view that "it is likely {Bill} will have to retire on health grounds." The surgeon might argue that he is being realistic, but, unlike the GP he doesn't appear to be highly motivated by the need to facilitate Bill's social rehabilitation. It might be argued that he expects the patient to modify his goals and expectations around the biological state rather than the practitioner's rôle being to modify the biological to accommodate (as far as possible) the patient's needs.

Perhaps because there are fewer serious consequences riding on the outcome of the Patient Study, differences between the practitioners with respect to the function of patients is less evident. Nevertheless, there are pointers to significant differences. The orthopaedic surgeon's focus is clearly on the patients' pain, which drives both treatment

and management. Consideration of any other aspect to the problem, or of preventative measures has lower priority. This contrasts with the physiotherapist and osteopath both of whom give equal weight to causal and preventative factors and to the kind of activity the patients are engaging in. The physiotherapist explicitly aims to “give ... control over her back” to Mrs A; he plans a number of rehabilitation and preventative measures for Mrs B; an overall aim for Mrs C is “to develop a long term strategy so that she can return to uninhibited activity and to maintain maximal function.” This is not to say that the orthopaedic surgeon does not consider these things, but they are not his primary focus. For example, he advocates additional treatment from physiotherapists or osteopaths for each of the three patients with the aim of muscle strengthening and improving mobility.

The Case Studies point to the osteopath, the GP and the physiotherapist explicitly attempting to bring local factors into a global picture. The differences between them lie in the ways in which they do this. The osteopath attempts to provide a cohesive narrative that brings all factors into one explanation; the GP follows the standard medical model by supplementing the pathological diagnosis with a sophisticated account of the context in which the disease is operating, and the physiotherapist provides a number of parallel accounts that are factors in the holistic experience of the patient. The orthopaedic surgeons’ diagnoses focus on evaluating the functional capacity of specific organs and tissues more than do the primary care practitioners.

Careful reading of the reports reveals that even in relatively straight-forward accounts, e.g., diagnosis of facet joint degeneration, context plays a significant part in the overall clinical judgement of all practitioners, but that it is more explicit for primary than it is for secondary care practitioners. This suggests that a dual focus on the function of the local part and the function of the person is common to all practitioners though the weight given to each may be different depending on their particular interests.

4.2.3. *Function analysis: different modes of enquiry*

My analysis so far suggests that there are two (apparently different) models of function at work in practice. One model focusing mostly on the proper behaviour of organs and tissues, where the proper goal of the organ and tissue is part of medicine's body of knowledge, and the other on the patient's activity where judgements of what is 'proper' or normal are complex and unique for each patient. Practitioners have not only to discover this information they have to synthesise it into an overall clinical assessment. This involves combining judgements of whether or not a part is functioning well with judgements about the appropriateness of a person's life-style and how that fits with their goals and expectations. Hence there are three kinds of diagnostic judgement clinicians have to make, the first involves judgements about how well a local part is functioning, F_{phys} , the second, assesses the person, their medical history, occupation, goals and expectations describing how they function in their world, F_{glob} , and third is a judgement that combines the first two within a coherent explanatory framework. The remainder of this Chapter will reflect on the first two judgements while most of Chapter 7 addresses the way practitioners combine judgements.

Focusing on the function of local parts and focusing on the function of people produces different kinds of knowledge which, as I shall demonstrate, require different modes of enquiry, an epistemological one that judges whether a part is functioning well, and an ontological one that judges which states are constitutive of the problem. These different foci are particularly evident in naturalistic and normative accounts of function.

4.2.3.1 *The epistemological focus*

Because, for naturalists, goals are given and context implicit and assumed, their primary focus is on the epistemological question, 'does this example function well?' Diagnosis centres around knowing whether or not *this* case is an example of a particular disease or falls within normal physiological parameters. It assumes a body of knowledge that describes the proper function of body parts and behaviours.

The Case Studies suggest that this is the primary mode of enquiry employed by the orthopaedic surgeons, but that it is important to all practitioners. Arguably, the force of Western medical investigation lies in its ability to test whether or not a part is contributing to the total body economy understood bio-medically. Today's scientific knowledge of body mechanisms and the technical ability to modify them extends well beyond anything previously available. It is possible to test a wide range of physiological parameters and to use biostatistical analyses to form judgements of what is normal. Without this knowledge and the belief that it provides information about real states of affairs, modern medicine could not operate.

It is important not to confuse the fact that information of this kind can be generated and applied to medical problems with the kind of information it represents, i.e., descriptive scientific, or value-laden and normative. Whether or not it is value-free depends on whether or not function ascriptions are value-free, a debate that will be explored in Chapter 5. Nevertheless, and regardless of whether standards of normal function can be described non-evaluatively, practitioners use the information *as if* it is value-free, and, as we have seen, it is an important element in the diagnostic armoury of conventional medical practitioners and osteopaths.

The main judgement involves knowing whether or not a part is behaving within standard parameters. This involves testing a particular example against a general body of knowledge. This was evident in the Patient Study, particularly from the orthopaedic surgeon who used straight leg raising (SLR) tests, neurological tests plus reference to x-ray plates to test a range of functions. These are reported non-judgementally as matters of fact rather than as information within an evaluative framework. Of course, the information must be interpreted, which requires a theoretical framework; the result of reflex testing only has significance within an understanding of how the neurological

system works.⁵⁸ But information gained from testing, notwithstanding false positives and negatives, is assumed to provide secure knowledge of how well a local part is functioning. The optimism, particularly from students and inexperienced practitioners is that this information alone will guide them to the correct diagnosis and treatment, but this is to ignore the second part of clinical judgement which entails an ontological focus.

4.2.3.2 *The ontological focus*

For the normativist, where goal is conditional on context, which must be explicit, clinical judgement is (in part) an ontological issue, based on knowing what is constitutive of function in this case. Defining which properties, contexts and relationships play a significant rôle in the problem is an ontological issue. The case studies suggest that this kind of enquiry is employed by the osteopath and, though less explicitly, by the GP and physiotherapist.

There are two senses in which consideration of ontology is important to my study, the first, which I will develop later in more depth, is the way a practitioner constructs the explanation of a particular problem; which factors – physical, psychological social etc. – are constitutive elements of the problem, part of the stuff of the illness. The other sense, which is foundational to the first one, is the way practitioners perceive human beings in illness and health. This is what Foucault termed “the medical gaze”, which describes the way doctors look at the human body, it determines what is seen, how it is described and used to construct understanding. (Evans, 2001; Foucault, 1973; Svenaeus, 1999) The professional gaze is implicit in practice values and mores and rarely questioned by practitioners. Although I am not directly addressing this issue, it lies just below the surface of many of the areas I am examining, in particular the way practitioners (making these assumptions) explain illness and construct diagnostic explanations. This, I will

⁵⁸ I will ignore the question of whether medicine’s body of knowledge is constructed or real as it is outside the remit of my thesis. (See for example, Good, 1994 quoted in Evans, 2001) My cont ...

argue, entails constructing ontological explanations that are specific for each patient and problem. Differences between practitioners lie in the kind and amount of information each assumes to be ontologically related to the problem and on which the problem is dependent. In the Patient Study this is based, in part, on the extent to which the global ability of the patient to act is an important consideration.

There is debate at present about what back trouble is. (See footnote 57) Although it is widely accepted that it is not explained by pathological and biomechanical factors alone (and at times not at all), there is no model in conventional medicine (including physiotherapy) to explain it other than through the term “biopsychosocial”. Although acknowledging that a range of factors somehow contribute to the problem, it offers no account of how the (ontologically) different elements relate to one another. (This must also address, or explicitly avoid, the mind-body problem.) The most common way of conceptualising the rôle of psychosocial factors in back trouble is as a predictor. (Barnes, Smith, Gatchel & Mayer, 1989; Burton, Tillotson, Main & Hollis, 1995; Gatchel, Polatin & Mayer, 1995) What is unclear is whether a predictor is also causal. Although most of the research is being done by clinical psychologists investigating correlations of back trouble with depression, the fundamental question is philosophical – what is the ontological status of back trouble? The earliest account of back pain can be found in an Egyptian papyrus from 1500 BC, but it was only in the 19th Century that back trouble became a medical problem; in 1828 a physician named Brown suggested that it was related to the spine and soon afterwards, aided by new compensation laws, it was accepted that back trouble could be caused by injury, and the condition termed “railway spine” emerged which was reputed to be caused by travelling at speed on the new railways. (Waddell, 1997) Before this time, back trouble was accepted as a ‘normal’ part of life – what could be taken for granted.

point is that it is treated as if it is real.

My interest is to see which elements, drawn from the Case Studies' patient histories and examinations, the practitioners consider to be explanatory, i.e., part of the ontology of back trouble (which all three patients suffered from). In my initial analysis of the Case Vignette, I noted that the osteopath dealt with psychosocial factors differently from the orthopaedic surgeon. For the surgeon, these are external factors that can modify the effects of the "organic" back problem, while for the osteopath they are integral factors in explaining the problem. To what extent does this distinction manifest in the Patient Study?

The orthopaedic surgeon, although acknowledging the occupations and activities of the patients to some extent, doesn't incorporate them into his explanations of the problems. His focus is entirely on the biophysical and mechanical with the slight exception of Mrs B whose "pain may be modified when she stops her present job ..." (p. x) The osteopath considers many more factors to be part of the patients' problems, including events from their medical history, and other conditions, such as the knee problem of Mrs A, which are not considered to be important by the other practitioners. Despite being much broader, the focus is still primarily a biomechanical one. The physiotherapist also draws from a wide range of factors with the aim of returning the patient to normal activities. He too has a tendency to rely on biophysical explanations; his final prognosis for Mrs C opines that "It would be reasonable to expect to be able to restore a painless and functional spinal unit ..." (p. xxii) However, he is different from the osteopath in the way that he itemises the various elements rather than trying to synthesise them into a single explanation. Where the osteopath tries to develop a single narrative to bring the various elements together, the orthopaedic surgeon narrows his focus onto the primary causes of the pain, and the physiotherapist deals separately with each clinically significant factor.

The final difference of significance in the context of ontological enquiry, is the marked contrast between the orthopaedic surgeon who categorises the key states – facet joint degeneration, mechanical back pain – and the osteopath who describes a unique state for each patient, even though it includes many of the same factors identified by the

orthopaedic surgeon. The physiotherapist falls between the two in that he identifies a wider range of key states than the orthopaedic surgeon, each of which falls into a recognised category, but he doesn't go as far as the osteopath in trying to produce a single global account. Presumably, the fact that he does consider a range of factors to be important in explaining the problem, means that he assumes them to be connected in some significant way, but he doesn't make that as explicit as the osteopath does.

In conclusion, then, all practitioners use epistemological enquiry to judge whether or not specific parts function well. Differences lie in what is considered to be normal function and the extent of a local part, e.g., whether the focus is on the L5 disc, the lumbar spine or the low back. But practitioners also use a second form of enquiry to judge what is or isn't relevant; this I have termed ontological as it involves judging what is and isn't part of the illness. This is a complex issue as it involves professional practice beliefs and mores at one level and the way these are used to interpret the patient's illness at another. This latter aspect will form an important focus for my later analysis.

4.3. Summary of Part 2

Part 2 has explored the work that function ascriptions perform in practice as evidenced by the Case Studies. It has begun to clarify the importance of context and identified a number of dualities at work in theory and practice all of which entail function statements in some form:

- ❖ A focus on biological mechanism *vs.* a focus on the person
- ❖ Disease *vs.* illness
- ❖ Reductionist *vs.* holistic explanations
- ❖ Primary *vs.* secondary care
- ❖ Epistemological *vs.* ontological enquiry

The next task is to see how this resonates with biological function, because the door is still left ajar to F_{biol} being the primary concept for practice if it can be defined non-evaluatively.